MECCANO® Magazine

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QUARTERLY

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TIME MARCHES ON!

WELL, HERE WE ARE with the fourth issue of the MMQ: the end of the first full year of publication – and it only seems like yesterday that we started work on No.1!

For those of us involved in producing the magazine, the past year has been an eventful one, full of interest and also with its share of panics. None of our small, but dedicated, staff realised at the beginning how much was involved, not only in launching a magazine "from scratch", but also in physically producing and circulating each issue. Being quarterly, we had thought there would be ample time, in addition to other duties, to handle all the work required, but the facts soon proved otherwise. Taking into account some model-building, much writing, editing, proof-reading, photo-numbering, page layouts, printing, subscription arrangements – even packing and sealing envelopes – six months would be more realistic!

Nonetheless, we have managed to publish the MMQ more or less at three-monthly intervals and will continue to do so. We have, of course, made mistakes, but we like to think we have learned by those mistakes for the future improvement of the magazine.

The worst problems arose from the magazine's initial launch when we received more than 2,000 subscriptions at once, as well as having a fair number transferred from M.A.P., the M.M's previous publishers. Most subscriptions, of course, were quite straight-forward and were easily dealt with, but, because of the time factor, it was impossible to deal immediately with the few which raised complications. We could not, for instance, give personal replies to subscribers who asked additional questions with their applications, nor could we immediately handle subscriptions where the cash involved, or the number of issues required, was not standard. (This applied particularly to M.A.P. transfers.) As a result, a few readers experienced excessive delays – a situation which, although unavoidable, we deeply regretted.

Equally regretted were the errors – luckily, few – which we, ourselves, made: incorrectly entering the occasional subscription, mis-spelling a name here or an address there; even overlooking one or two subscriptions completely. However, we hope that all fair-minded readers will accept that, bearing in mind the thousands of subscriptions involved and the brand new nature of the project, some mistakes were unfortunately inevitable. We believe our teething troubles are now over, but, if any reader still has cause for complaint, please contact us and we will do our best to give satisfaction.

And, talking of satisfaction, during, the past year all of us on this side of the printing press have obtained a great deal of personal satisfaction from producing the MMQ. More important, though, the magazine appears to have met with your approval, judging from your many letters, and we would now like to express *our* thanks to *you* for your good wishes and support. It is your support which has assured the survival of Meccano Magazine.

SUBSCRIPTIONS RENEWAL

The end of our first publication year, of course, means the end of most readers' subscriptions. We hope that all will re-subscribe for the coming year and, for this reason, we include a Subscription Renewal Form with this issue. (Those readers with subscriptions still unexpired should ignore this Form as they will be notified separately when their subscriptions are due). We would appreciate the return of the completed Forms as soon as possible, but, to avoid complications, we do ask that no additional queries are included with them, unless, of course, the queries relate to your subscription. It is difficult enough entering several thousand subscriptions, without having to separate and answer other points as well! By the same token, we are unable to acknowledge receipt of subscriptions, although we will endeavour to do so if the subscription is accompanied by an S.A.E. Also, overseas readers paying their subscription by bank draft, or by a cheque drawn on a British branch of their bank, will help us considerably if they have the draft or cheque made payable in Sterling, rather than in their own currency.

The Editor and Staff of Meccano Magazine extend sincere best wishes for 1974 to all our readers, contributors and advertisers.

HAPPY NEW YEAR!

Continued on Page 24

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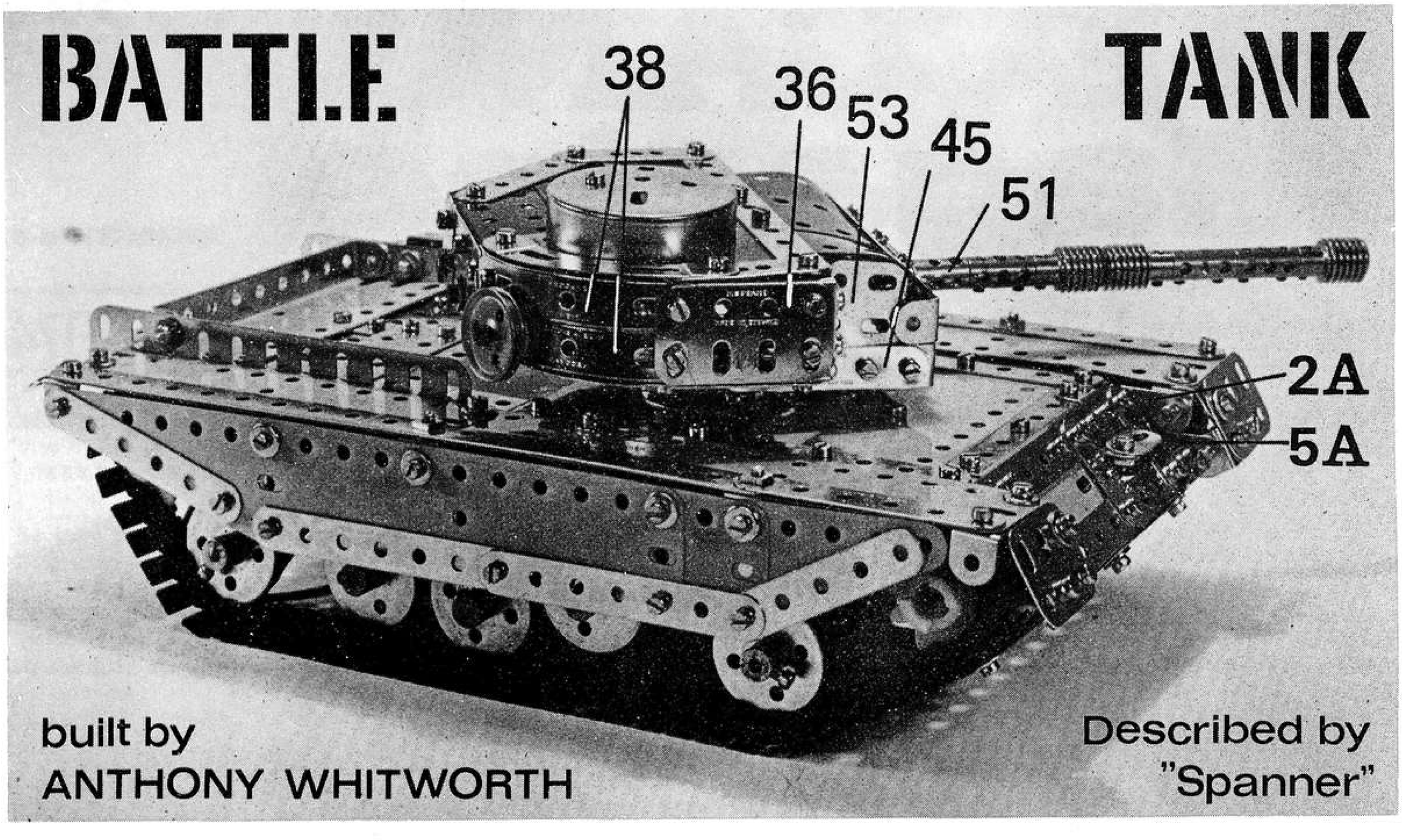


NOBODY IN his right mind looks on war with pleasure, but the fact is that the mechanical accoutrements of war - particularly fighting vehicles - are intriguing to very many people: the rugged shapes, the movements and the general air of strength are fascinating to behold!

I, as much as anybody, am captivated (from a purely mechanical point of view) by fighting vehicles and I am therefore particularly pleased to feature the Meccano Tank, illustrated here. Designed and built by Mr. Anthony Whitworth of Epsom, Surrey, it is based on the famous British Centurion and it certainly captures the atmosphere successfully. Fitted with working crawler tracks from the Meccano Caterpillar Track Pack, it is powered by a Motor-with-Gearbox which, if required, also rotates the turret automatically as the tank is driven along. Proportions, overall, are good, and especially so when considered in relationship to the tracks which appear well in scale.

BODY

As regards construction, each side of the main body frame consists of a 10½" compound flat girder 1, supplied by a 9½" and a 2½" Flat Girder. A 9½" Strip 2, extended two holes forward by a 1½" Strip 2A and further extended four holes rearwards by a 5½" Flat Girder 3, is butt-joined to the upper edge of the compound girder by a 1½" Corner Bracket 4 at the forward end and a 1" x 1" Angle Bracket 5 six holes from the rear end of Flat Girder 3. Note that the Bolt fixing Corner Bracket 4 to Strip 2 also holds a 2½" Strip 5A and an Angle Bracket in place. Bolted to the spare lug of this Angle Bracket is a 4½" Angle Girder 6, which connects the two body side frames together, and a rearward-running 9½" Strip 7, positioned as shown. The rear ends of compound flat girders 1 at each side are connected together by a 2½" x 1½" Flanged Plate 8 extended by a 3" x 1½" Flat Plate, the latter attached to the compound girder – and to Flat Girder 3 – by Angle Brackets. The rear ends of compound girders 3 at each side are connected by a 4½" x ½" Double Angle Strip 9. A 4½" Angle Girder 10 is bolted between the spare lugs of 1" Angle Brackets 5, the securing Bolts also passing through the second holes from the rear ends of Strips 7 to hold the Strips in place.

Now bolted between Strips 7 in the positions shown are two 4½" x 2½" Flexible Plates 11, a 4½" Strip 12, this also attached to Strips 2 by Angle Brackets, and two 4½" compound strips 13, each built up from two 2½" Strips. Note that the forward edge of rear plate 11 is overlaid on top by a 4½" Strip 14 and note, also, the gap between Strip 12 and rear Plate 11. This gap is necessary to accommodate the journals for the revolving gun turret.

Bolted centrally to Angle Girder 6, forward Plate 11 and Strip 12 is a 3½" Strip, the rear securing Bolt also fixing a ½" Reversed Angle Bracket 15 in place. A 5½" Strip 16 is centrally bolted to rear Plate 11, Strips 13 and Angle Girder 10, the forward securing Bolt in this case also fixing a ½" Reversed Angle Bracket 17 in place. A 1-1/8" Flanged Wheel is bolted to the spare lugs of the Reversed Angle Brackets, while a 4½" x 2½" Flexible Plate 18 is bolted to the protruding end of Strip 16, as shown.

Attached by Obtuse Angle Brackets to Angle Girder 6 at the front of the body is a 2½" x 1½" Flexible Plate 19 edged along the top by a 4½" Strip, along the sides by 1½" Strips and along the lower edge by a 4½" Angle Girder 20. The remaining ends of Girder 20 and the 4½" Strip are joined by another 1½" Strip, the resulting rectangular gap representing the driver's forward-view hatch. A hatch cover is represented by a Fish-plate bolted to an Obtuse Angle Bracket which is in turn bolted to the 4½" Strip. Fixed to the lower flange of Angle Girder 20 are two 2½" x 1½" Flexible Plates 21, overlaid along the rear edges by 2½" Strips. The rear corners of the Plates are connected to the lower forward corners of compound flat girders 1 by

1" x ½" Angle Brackets. At the rear of the body a 4½" Angle Girder 22 is attached to Double Angle Strip 9 by Fishplates.

Turning to the track guards, these are comparatively easily built up from a 12½" x 1½" compound flexible plate 23 – supplied by one 2½" x 1½" and two 5½" x 1½" Flexible Plates – overlaid on the outside edge by a 12" compound strip and bolted to four 1½" x ½" Double Angle Strips fixed at intervals to Strips 2 and 2A and Flat Girder 3. At the front, Plate 23 is extended forwards and downwards by a 1½" Flat Girder 24, attached by an Obtuse Angle Bracket, and, at the rear, it is extended backwards and downwards by a 1½" Strip, also attached by an Obtuse Angle Bracket. Flat Girder 24 is also attached to strip 5A by a 1" x ½" Angle Bracket. The sides of the guard are built up from a 6½" x 1½" compound flexible plate 25, extended forward by a 2½" x 1½" Triangular Flexible Plate and extended rearwards by a 3½" x 1½" Triangular Flexible Plate. The first Plate is edged by a 6½" compound strip, the second Plate by a 2½" Strip and the third Plate by a 3" Strip. Note that the compound flexible plate is supplied by a 5½" x 1½" Flexible Plate and a 2½" x 1½" Flexible Plate, overlapped three holes, while the compound strip is supplied by two 3½" Strips overlapped one hole. The finished assembly is bolted to the outer lugs of the 1½" x ½" Double Angle Strips mentioned above.

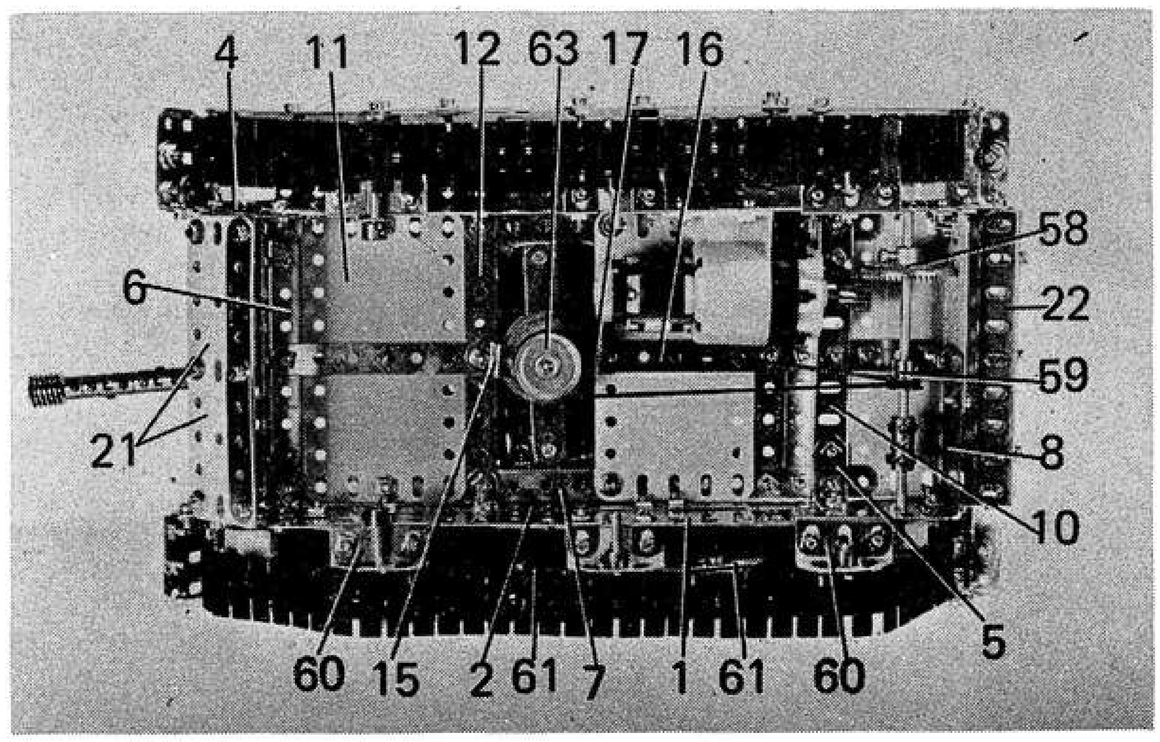
GUN TURRET

Turning now to the gun turret, the forward flange of a 3½" x 2½" Flanged Plate 26 is extended three holes outwards at each side by two 2½" Strips 27. Attached to these Strips, and arranged to run parrallel with them, is a 5½" Strip 28, the connection being made by the long lugs of two 1" x ½" Angle Brackets bolted between the ends of the Strips. Bolted to the top-positioned short lug of each of these Angle Brackets is a 2" Angle Girder, the securing Bolt also holding in place a 5½" x 1½" Plastic Plate overlaid along its forward edge by a 5½" Strip 29 and along the two side edges by 2" Strips. The Plate is extended rearwards by two 2½" x 1½" Plastic Plates 30, while the left-hand 2" Strip is extended rearwards by a 2½" Strip 31, angled as shown, the right-hand 2" Strip being extended by a 3" Stepped Curved Strip 32. The rear ends of Strips 31 and 32 are bolted to the rear corners of Flanged Plate 26, the securing Bolt in the case of Curved Strip 32 also holding a 1" Corner Bracket 34 in place. A Boiler End 35 is bolted to the top of the Flanged Plate to represent the turret cupola.

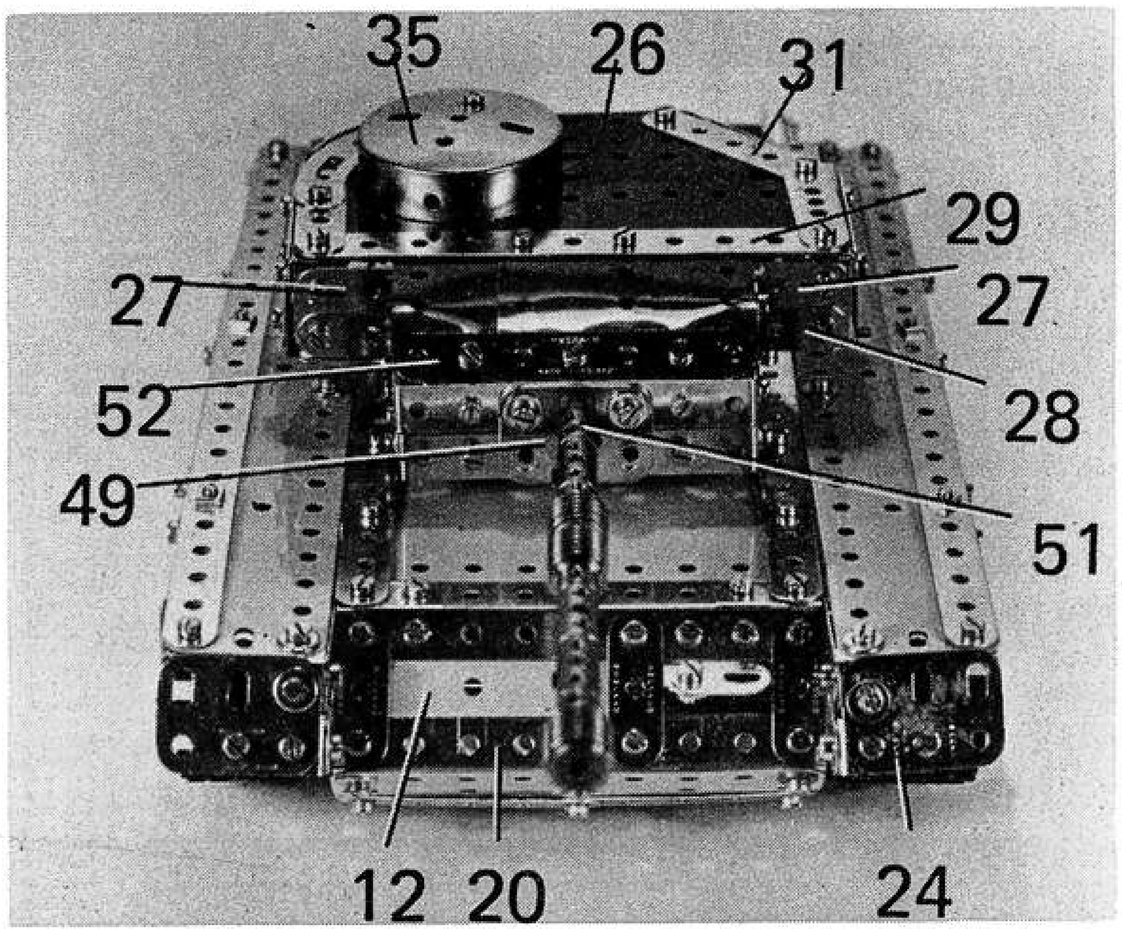
Now bolted to the vertical flange of each 2" Angle Girder is a 2" Flat Girder 36, while a 2½" Flat Girder is bolted to the rear flange of Plate 26. The latter Girder is connected to left-hand Girder 26 by 2" Strips 37, attached by Obtuse Angle Brackets, and to right-hand Girder 36 by Fishplates and Formed Slotted Strips 38. A ½" Plastic Pulley, overlaid by a 1" Pulley without boss 39, is bolted to the lower Formed Slotted Strip in the position shown.

Bolted to the lower edge of the 2½" Flat Girder, to project beneath the turret, is a Girder Bracket 40. Running from one side of this to follow the contours of the turret are, in order, a Fishplate, a 2½" Strip 41 and a 2" Flat Girder 42, the latter also attached to Flat Girder 36 and to Strip 28 by Angle Brackets. Attached to opposite Girder 36 also by Angle Brackets is another 2" Flat Girder, this extended rearwards

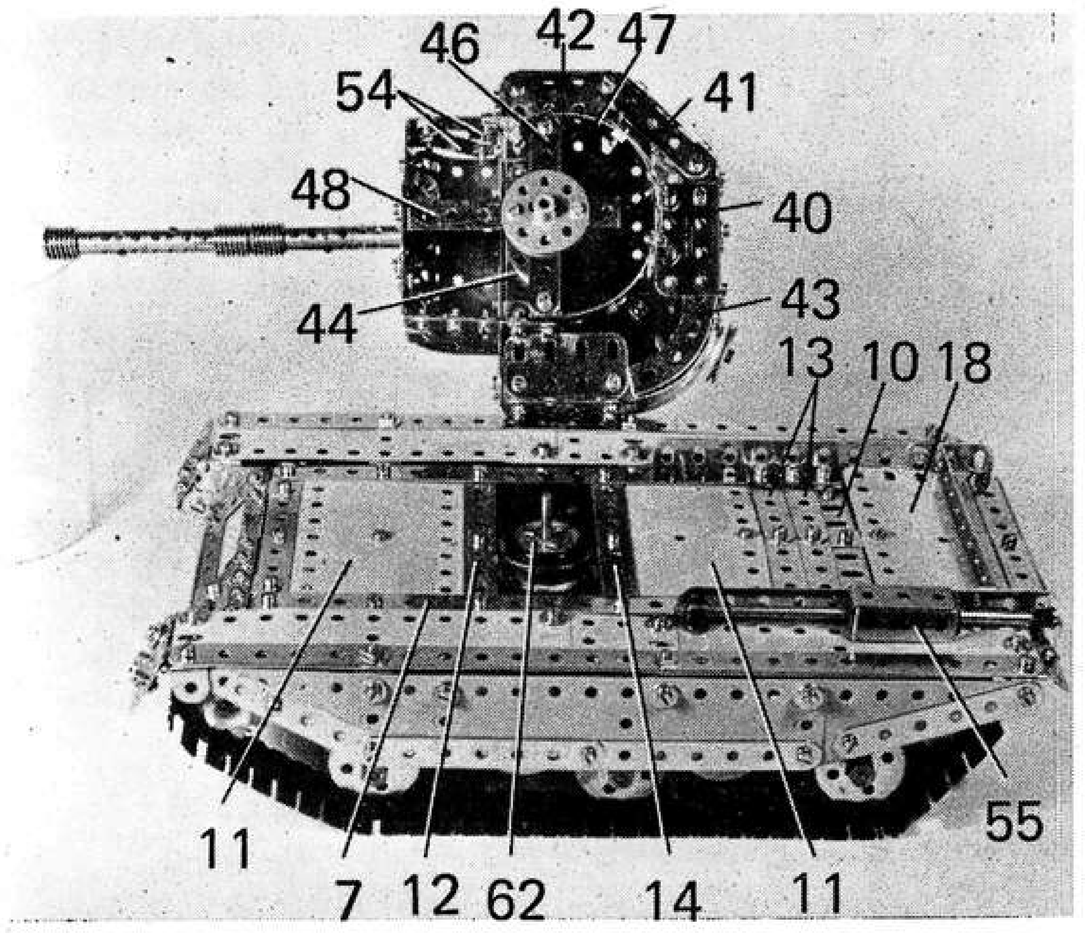
Opposite page: the superb Centurion Tank built by Mr. Anthony Whitworth of Epsom, Surrey. Right: an underside view of the model showing the motor and drive system. The turret revolves automatically as the Tank drives along.

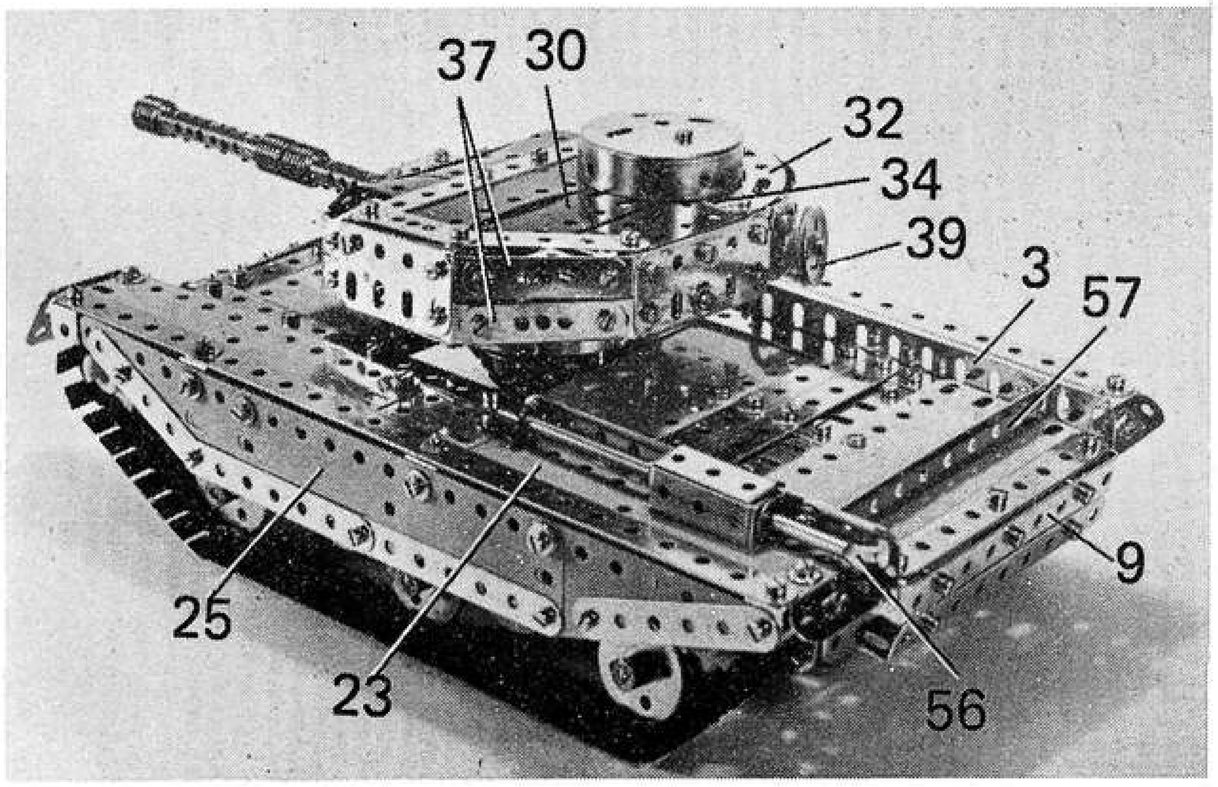


Strength and power! A dramatic front view of the Tank.



The underside of the turret and top of the main body.





A general three-quarter rear view of the Centurion Tank built by Mr. Anthony Whitworth of Epsom, Surrey. A very realistic model powered by a motor-with-gearbox.

by a 2½" Stepped Curved Strip 43.

A 3½" Strip 44 is next attached to Strip 28 by Corner Angle Brackets, to the lower lugs of which two 2½" Strips 45 are bolted, the securing Bolts passing through the second holes of the Strips. The rear ends of the Strips at each side are connected by a 3½" Strip 46, attached by Angle Brackets, at the same time extending the Strips rearwards in a complete semi-circle using three Formed Slotted Strips 47. At their rearmost points, these latter Strips are attached to Flanged Girder 42 by two Angle Brackets. The forward ends of Strips 46 are connected by a 3½" x ½" Double Angle Strip, to the centre of which a 3½" x ½" Double Angle Strip 48 and a 1½" Flat Girder 49 are bolted. Double Angle Strip 48 crosses 3½" Strip 46, as can be seen. Two 8-hole Bush Wheels 50 are bolted to the Double Angle Strip so that their bosses coincide with the crossing point. The boss of the upper Bush Wheel points upwards, while that of the lower points downwards.

Bolted to the upper section of Flat Girder 49 is a 3½" x ½" Double Angle Strip, the securing Bolts also fixing two overlying 1½" Strips in place. Attached to the centre of these Strips is a Threaded Coupling 21, in the longitudinal bore of which a 5" Rod is held. Fixed on this Rod to represent the barrel are, in order, a Coupling, two Worms, face to face, two more Couplings and a final Worm. Attached by Obtuse Angle Brackets to the upper edge of the supporting Double Angle Strip is a 3½" Strip 52, three 2½" x 1½" Plastic Plates then being bolted between this Strip and the underside of the main turret top Plate to complete the turret top surface. The remaining gaps at the sides are enclosed by a 1½" Flat Girder 53 in the right-hand case and two 1½" Strips 54 at the left.

Before fitting the turret to the body a simulated exhaust pipe is built up from three 1½" x ½" Double Angle Strips 55, arranged to form a box, with the inside Strip being bolted to left-hand Flat Girder 3. Mounted in the lugs of the Double Angle Strips is a 4½" Rod, the forward end of which is held in a Collar secured to the left-hand track guard. The rear end of the Rod is extended by a Rod Connector, in which a Centre Fork 56 is carried to represent the exhaust nozzle. A 4½" x ½" Double Angle Strip 57, incidentally, is bolted between the third holes from the rear of Flat Girders 3 to complete the body.

DRIVE SYSTEM

The drive system should also be completed before fitting the turret. A Motor-with-Gearbox, pre-set in one of the higher reduction ratios, is secured to the left-hand body side-member, as shown. A ½" Pinion on the output shaft meshes with a 1½" Contrate Wheel 58 on the main drive axle – supplied by a 4½" and a 2" Rod joined by a Coupling and journalled in the second row circular holes of compound flat girders 1– where it is held by Couplings on which Plastic Meccano 10-teeth Sprockets are mounted. If the turret is later required to revolve automatically as the tank drives, a ½" Pulley 59 is also fixed on the axle.

At the front of the body, a 6½" compound rod, built up from a 4" and a 2½" Rod joined by a Rod Connector, is journalled in the centre holes of Strips 5A and the slotted base holes of Corner Brackets 4. As with the drive axle, it is held in place by Couplings fitted with Plastic Meccano 10-teeth Sprockets.
Note, that the Couplings on both axles are spaced from the body by Washers.

Five idler wheels for each track are supplied by 1-1/8" Flanged Wheels, the outer two being mounted on short Rods journalled in Trunnions bolted to 1½" Angle Girders 60 which are in turn bolted to compound flat girder 1. The centre wheel is mounted, along with two 2½" Strips 61, on another short Rod also journalled in a Trunnion, this one being attached by Angle Brackets to the compound flat girder. The two final Wheels are mounted on Pivot Bolts journalled in the second holes from the ends of Strips 61. Each track, which is of course carried on the idler wheels and the Plastic Meccano Sprockets, is supplied by 65 Catterpillar Track Links. With the tracks in place, the clearance under the track guards is not excessive and a little readjusting may be necessary – perhaps reversing the directions of some securing Bolts to point outwards – to obtain the maximum possible clearance.

The turret may now be mounted on the body, where it revolves easily on a simple ball race. Four Meccano Steel Balls are carried in the Flanged Wheel bolted to Reversed Angle Brackets 15 and 17, being held inside by a 8-hole Wheel Disc which serves as a cover. A 1" Pulley without boss 62, fitted with a Rubber Ring, is positioned on top of the Wheel Disc, then a 2" Rod, held in the bosses of Bush Wheel 50 in the turret, is passed down through their centre holes and, free, through the boss of the Flanged Wheel, being held in place beneath by a 1" fixed Pulley 63. To add extra movement to the model, Mr. Whitworth connected this Pulley, with a 10" light Driving Band, to Pulley 59 on the drive axle. Thus, when the tank moves along, the turret revolves automatically – a novel feature for a generally very pleasing model.

PARTS REQUIRED

6- 1a	1-16a	1- 53	1-133a
3- 2	1-16b	7- 59	4-147b
4- 2a	4-18a	8- 63	1-154a
6- 3	2-18b	1- 63c	1-154b
4- 4	11-20	1- 65	1-155
21- 5	1-22	8- 69b	1-161
4- 6	2-22a	1- 73	1-162a
5- 6a	1-23	1- 89a	4-168d
4- 9a	1-23a	2-103a	1-186b
2- 9e	1-24a	2-103c	5-188
4- 9f	1-26	3-103f	6-189
5-10	3-32	4-103g	3-191
18-12	220-37a	3-103h	4-194
2-12a	216-37b	1-111	1-194d
6-12b	40-38	1-111a	2-213
13-12c	11-48	4-111c	5-215
1-15	3-48b	2-125	2-221
2-15a	2-48c	6-126	2-224
1-15b	1-51	2-133	4-P84
1 Motor-with-Gearbox			130-P91

STOP PRESS NEWS!

BRIGHTON PREVIEW

January sees the holding of the British Toy Fair (26th - 30th at Brighton), the first of the big international Toy Trade Exhibitions where manufacturers show the Trade their products for the coming year. It is at the Fairs that the first details of new products, or ammendments to existing products are released, so it is a particularly hectic time as everything must be ready – at least in pre-production form – if it is hoped to sell it during the year.

Needless to say, the strictest secrecy surrounds new products before the Fairs and, as this magazine is scheduled to appear before the Brighton Show, we would not normally be able to give any Meccano news here. On this occasion, however, because of the support shown by our readers, we have been given special permission to "jump the gun" by a few days and mention the two items of Meccano interest which the Trade will hear at the Show.

MULTIKIT

As regards Meccano, the success story of 1973 has undoubtedly been Multikit. Pre-production samples of the Army and Highway Sets were unveiled at Brighton last year and orders have been rolling in ever since. Speaking frankly, in fact, demand was so great that we were hard pressed to meet it – as some readers will know – but it all added up to the extremely successful product we had hoped for.

This year, with Multikit proved, a third set is to be introduced with the full title of "Meccano Super Highway Multikit". Slanted more at building models associated with road construction than with straightforward transport, it is in fact an expanded version of the Highway set containing useful additional parts. It includes, for instance, caterpillar track components which greatly increase the scope of the outfit and thus the enjoyment it offers. Two full-colour, step-by-step photographic Books of Models are supplied, one being the existing Highway Book featuring eight models and the other being a brand new Book containing plans for an additional eight models – Diesel Roller, Bulldozer, Dump Truck, Post-hole Borer, Snow Plough, Mobile Crane, Fork Lift Truck and Excavator. The Bulldozer, Mobile Crane and Excavator are fitted with tracks. Having seen all the models, we can confirm they are amazingly realistic.

The parts in the set are finished in the same colours as in the Highway Multikit, i.e. red cab, black wheels and yellow "standard" components. The Track Links are black and the Bolts and Hexagonal Nuts brass-plated. A new sheet of re-usable, self-adhesive vinyl stickers showing town names around the world, danger signs, speed limits, and a variety of radiators, louvres, dummy doors, etc., is included in the set to add the final touches to models.

As with the two existing sets, the Super Highway Multikit is designed to appeal directly to younger customers and, with its well-illustrated red packaging, it will certainly do just that. Production is expected to be under way by next month (February) and the set will sell in the U.K. at a recommended price of £5.45. Unfortunately, no details of overseas prices are available at the time of writing.

POCKET MECCANO

The other piece of Show news directly affecting the Meccano product concerns Pocket Meccano. First launched in 1971, Pocket Meccano is now entering its fourth year and our Management felt it was time to give it a "new look". The contents of the set remain unaltered, but the packaging has been enormously brightened-up to make the set instantly attractive to the budding young enthusiast.

The box, originally dark blue in colour, is now predominantly bright red, with light blue and yellow lettering and plenty of attractive full-colour illustrations, both of individual models and – the main one – showing a youngster building a model. The same colours and themes are repeated on the larger 12-pack dispenser from which Pocket Meccano is sold in the shops. The box, itself, has been made very slightly larger to more-easily accommodate the parts and Model Leaflet which, as present set owners will know, were a bit of a tight fit in the original box.

Probably the most interesting change of all, however, is in the Model Leaflet. A new Leaflet has been produced, giving plans for 25 models. Of these, only three have been carried over from the original instructions sheet; the remaining 22 are completely new and *have been designed by young modellers, themselves!* They have been selected from winning entries in the two Pocket Meccano "Build-a-Model" Contests run by the Company in 1971 and '72. And very nice they are too! Who said Meccano Limited does not consider its customers?!

Pictured above is the new Pocket Meccano box to be released at this year's Brighton Toy Fair. It contains a new Model Leaflet in which 22 of the 25 models featured were designed by young modellers, themselves. The T.V. Camera and Letter Balance are just two examples. Left: the new Super Highway Multikit with three of the many models that can be built with it (one at a time, of course!).

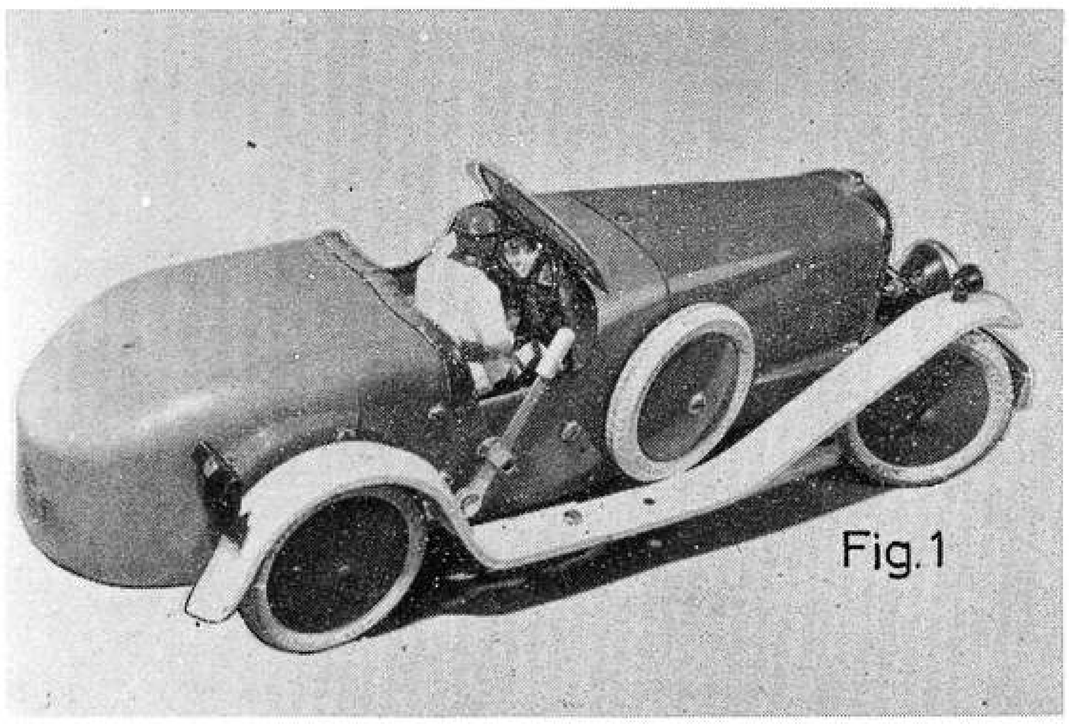


Fig. 1

COLLECTORS' CORNER

by B. N. Love

THE MOTOR CAR OUTFITS

FRANK HORNBY had nursed his Meccano system and Hornby Trains through a period of depression in the 1920's with such skill that he was still in the lead with the world's finest mass-produced constructional system at the end of the decade. He had won a U.S.A. court case lasting many years to protect his patents and was still head of a successful company at the time of a world trade slump.

Meccano has never been cheap and Hornby relied on quality, plus very intensive world-wide advertising, to expand his sales, but the explosion in universal communications triggered by radio broadcasts put heavy-pressure advertising on the scene in competition with Frank Hornby's established markets. Alive to this situation, the Meccano Company used the early part of the 1930's to expand their range of products, introducing Aeroplane, Motor Car and new standard Meccano outfits into the system. The first two-mentioned came on the scene in 1932, but, while the Aeroplane Constructor outfits were more of an extension of standard parts, the Motor Car Constructor was an outfit of specialised parts which were not intended for use with the standard system.

Quality was excellent, the models being very durable, as the two samples shown in Figs. 1 and 2 bear witness *after a period of more than 40 years!* A sturdy gauge of steel was used for chassis and body parts and the press tool design was first class. Nothing on the market at the time, or since, has been able to compete with these early · Motor Car Constructor Outfits for price, quality, finish and performance. A claim was made for a run of 150 feet on one winding and the author's car shown in Fig. 1 is still capable of this performance on a smooth floor of a school hall.

Fig. 1, above: the original 1932 Meccano Motor Car Constructor rigged as a sports tourer with running boards. Below: the No. 2 Motor Car Constructor model of 1935 rigged as a short wheelbase racer with separate mudguards.

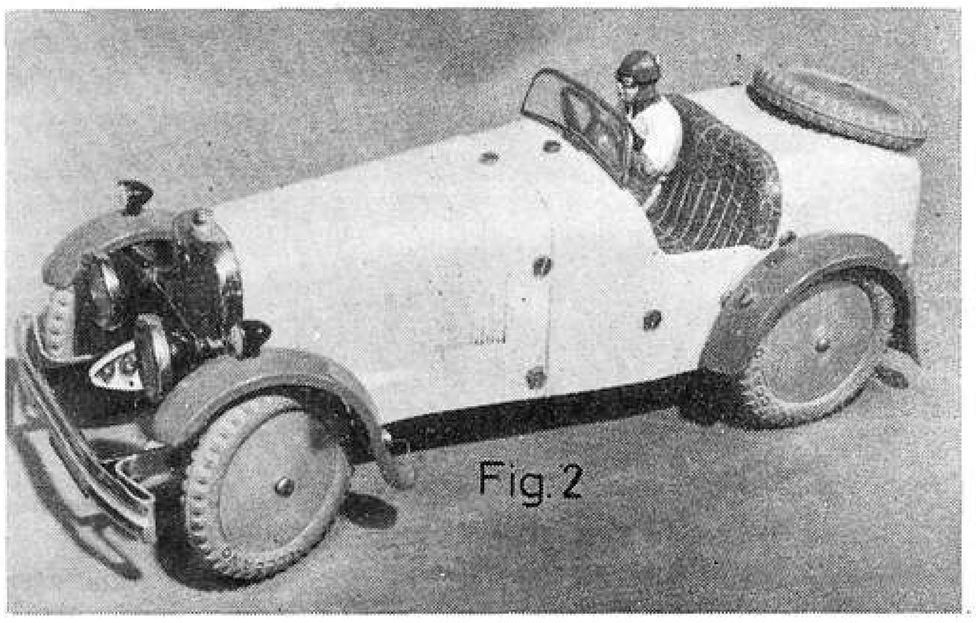


Fig. 2

Only one outfit was available in 1932 when the Motor Car Constructor was announced and illustrated on the back cover of the Meccano Magazine for September of that year. At 25 shillings, it was an expensive gift at the time – certainly beyond the budget of my own family – but one would be fortunate indeed to find anything comparable in quality or versatility at ten-times that figure today.

Special features advertised included high-power drive, Ackermann steering gear, internal-expanding rear wheel brakes, solid die-cast disc wheels fitted with rubber tyres and chromium-plated lamps, radiator and bumper, Each outfit was supplied with an alternative design radiator, two different sets of mudguards, two different body tail sections and an insert section for altering the wheelbase length of the car. Hence, four basic body shapes were available, each with two sets of mudguards, giving eight different models and, with two choices of radiators, the number goes up to sixteen. Fig. 1 shows the long wheelbase version of the original Meccano Motor Car Constructor, fitted with continuous rigid mudguards and running boards. Fig. 2 shows a later version, kindly loaned by Roger Lloyd, Treasurer of the Society of Advanced Meccano Constructors. His model has the separate front and rear mudguards, the front pair requiring a second bracing bracket (included in all the outfits) for attachment to the chassis members.

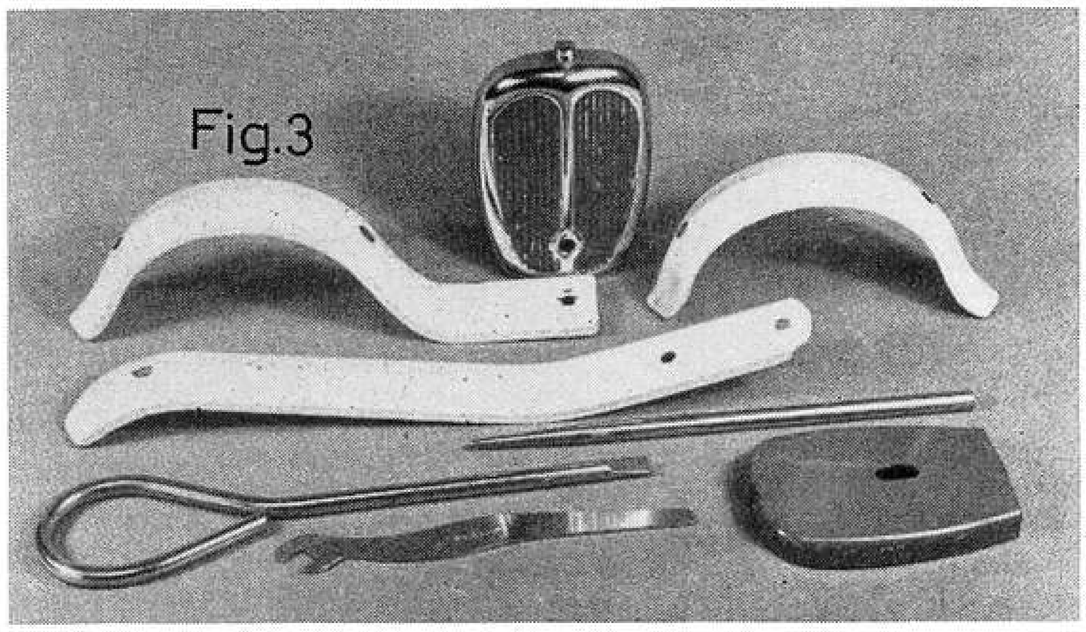
Of the two models shown here, the author's has red body sections and cream mudguards, while Roger Lloyd's car is in light cream bodywork with red mudguards. However, there are a couple of anomalies, even in the models illustrated here. When the Meccano Motor Car Constructor was introduced in 1932, there was no driver available, although both models are equipped with one in this article. Actually, the "upholstered" seat moulding of the author's original has no perforations for driver attachment, while the second car, a later product, has two. The driver is attached by the rather undignified process of having a slotted posterior! This traps a standard Meccano Nut – but all other nuts and bolts in the Car Constructor are non-standard! In fact, very neat,

flat-headed chromium-plated 6BA nuts and bolts are used for building these cars.

Older observant readers may also have spotted something peculiar about the wheels on the lighter car which are sporting Meccano Tyres. In common with some of the 'O' gauge Hornby locomotives of the mid-thirties, the wheels of the Meccano Motor Cars were made of a manganese zinc alloy which was subject to crystalline breakdown and, although Roger's car still had its original wheels, they were unfit for use and, in the model illustrated here, have been replaced by solid turned aluminium wheels. However, the 1½" standard Meccano Tyres are a perfect fit. Strangely enough, the original wheels of the 1932 car in Fig. 1 are still in perfect condition.

Fig. 3 shows some of the accessories from this outfit and readers will note the Spanner, which is quite different from the standard tool and designed for the 6BA hexagonal nuts used in the set. The Screwdriver is also worthy of note as its blade is a parallel continuation of the shank. This is to allow the Screwdriver to be inserted in the slot of the wheels to tighten the internal Grub Screws which lock the wheels to the back axle which is, in turn, driven via a special contrate wheel and pinion from the horizontally-mounted spring motor.

In the mid-thirties, the price of the outfit was reduced to 20 shillings and, by this time, a smaller version, known as the No. 1 Motor Car Outfit, was also introduced. This is shown in Fig. 4 which is a photograph of a page from the Meccano Magazine of the day. Additional accessories for the larger outfit, then known as the No. 2 set, included a complete lighting set with dashboard switch, pea bulbs on a miniature flex, headlamps, battery clips and coloured discs for the lamps. The spare wheel, included in the outfits from the start, could be attached either to the side of the car body, or mounted on top of the tail section, but, by the mid-thirties, a metal pressing forming a decorative spare wheel cover had been



Some of the accessories included with the Motor Car Constructor outfits: radiator grille, mudguards, drift, screwdriver, spanner and radiator clamping plate. The screwdriver had a special narrow blade and the spanner was for 6B.A hexagonal nuts..

added to the range. A further peculiarity of the Motor Car Outfits was that, while neither were compatible with standard Meccano, the No. 1 Outfit was also not compatible with the No. 2! Colour combinations were also extended to include blues, greens and orange so that a wide selection of cars could be constructed.

Enthusiasts often ask the question, "Why does Meccano Limited not re-produce these fine outfits today?" And the answer is, as always, a simple matter of economics. Re-production costs at today's figures, coupled with a limited market, would make the price quite unrealistic and non-viable as a commercial proposition. New products are, of course, still considered and produced by Meccano Limited, the recently-introduced Multikit sets, for instance, proving very popular indeed. Meantime, it goes without saying that anybody still possessing an original Meccano Motor Car Constructor outfit is well advised to treat it with pride, respect and the greatest of care.

Right: a specimen page from a 1935 Meccano Magazine showing reduced prices for the two outfits available.

Fig.4

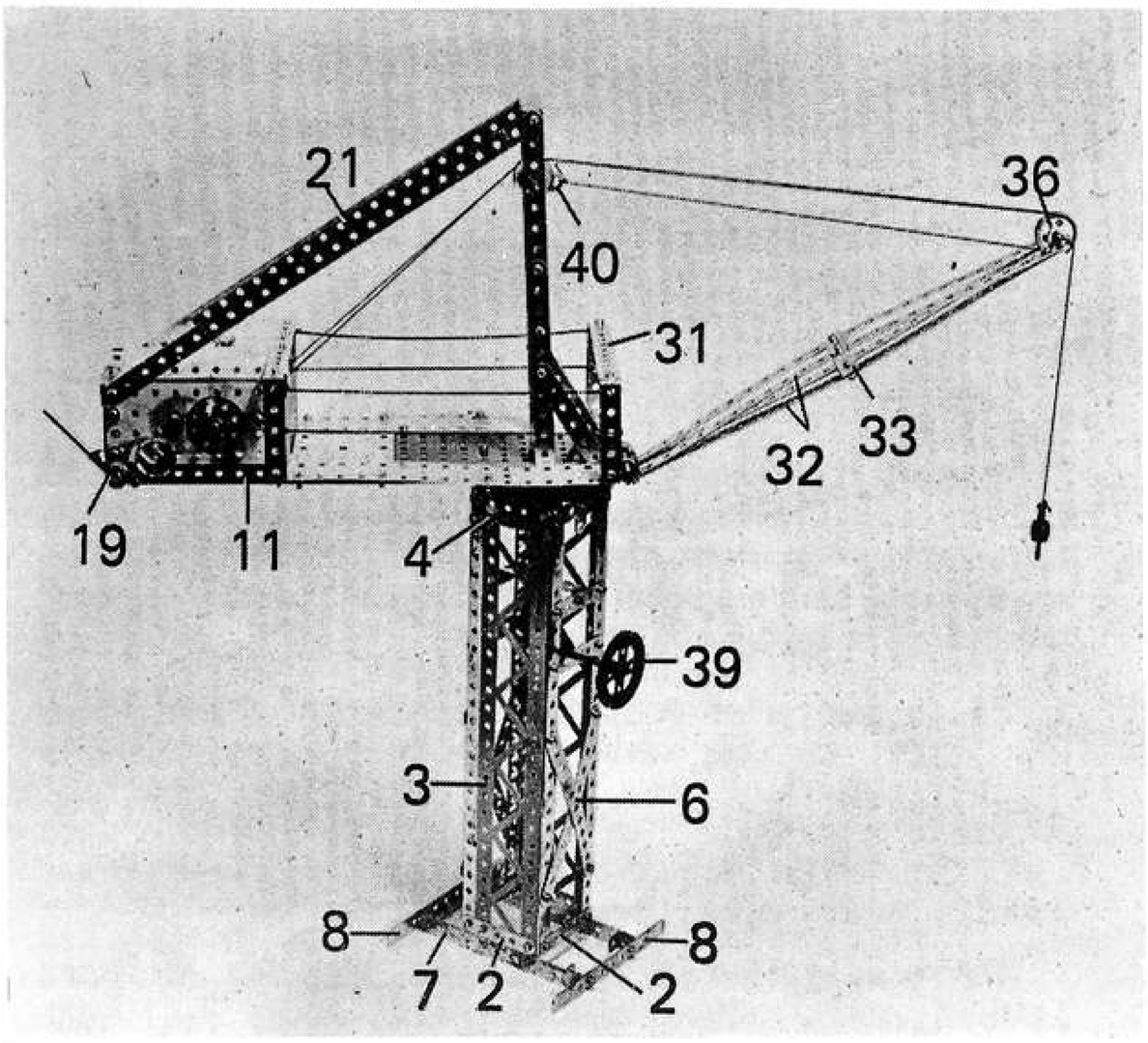
MOTOR CAR CONSTRUCTOR OUTFITS
You will be keen to have one!
Boys, as soon as you see these fine Motor Car Constructor Outfits you will be keen to have one. The models they build are superb. Sports four-seaters, coupés, speed cars and other perfect miniature reproductions, each one a beautiful model of its prototype. All the models are driven by means of a powerful Clockwork Motor (included in the Outfit), giving a long, speedy and realistic run on each winding.
The motor car parts are finished in rich enamel, nickel-plate and chromium, the complete Outfits being masterpieces of miniature automobile craftsmanship.
No. 1 Motor Car Constructor Outfit
The motor car models that can be built with this Outfit are the finest you ever saw. Look at the examples illustrated and think of the fine fun you could have building these and other types equally realistic.
No. 1 Outfit is available in four different colour combinations and is supplied complete with powerful Clockwork Motor.
Reduced Price 10/-
No. 2 Motor Car Constructor Outfit
Larger models of a superior type can be built with No. 2 Outfit. Their handsome and realistic appearance may be judged from the accompanying illustrations.
No. 2 Outfit is available in four different colour combinations, and a powerful Clockwork Motor that gives a run of 105 feet on one winding is included.
Reduced Price 20/-
No. 1 Meccano Motor Car Outfit
No. 2 Meccano Motor Car Outfit
Sports Tourer (with hood)
Sports Tourer (with folding hood)
Light Six Speed Model
Grand Prix Special

to build the Race Game featured in Past Masters on pages 12 and 13.

PARTS REQUIRED

2- 2	12-23b	4- 99a
26- 6a	3-24	6-103f
8- 7a	3-25a	27-111c
10- 8	6-28	3-115a
8- 9	190-37a	3-125
6- 9a	148-37b	6-126
6- 9b	65-38	2-126a
7-10	3-40	6-136
3-11	3-45	3-160
3-14a	3-46	3-171
6-16	3-48b	
3-16a	3-52a	
6-16b	39-59	
3-17	3-62b	
12-22	9-63	

SET 6 MODEL .. SET 6 MODEL .. SET 6 MODEL



WHARF CRANE

THE POPULARITY OF cranes as Meccano modelling subjects, is very well known and needs no explanation here. Suffice it to say that cranes, by the very nature of their design, construction and movements, are "naturals" for Meccano. Sure of a good reception, therefore, is the Wharf Crane featured here. Reproducing one of the types of dockland cranes used to load and unload ships' cargoes, the model is certainly realistic in design, without being in any way difficult to build. Meccano Set No. 6 contains all the parts necessary for its construction.

Four vertical uprights, supplied by 12½" Angle Girders 1, are connected together at top and bottom by 2½" Strips 2 to form a box assembly. At each of two opposite sides of this assembly, the Bolt securing the lower Strip to one of the Angle Girders also helps to hold a 12½" Braced Girder 3 in place, the opposite corner of this Braced Girder being connected to the other Angle Girder by a Fish-plate 4, as shown. Note that each Braced Girder projects one hole beneath the lower end of the relevant Angle Girders. Bolted between Angle Girders 1 across the remaining opposite sides of the box assembly are two 2½" Strips 5, secured through the sixth and ninth holes from the top of the Girders, and two crossed 5½" Strips 6, positioned as shown.

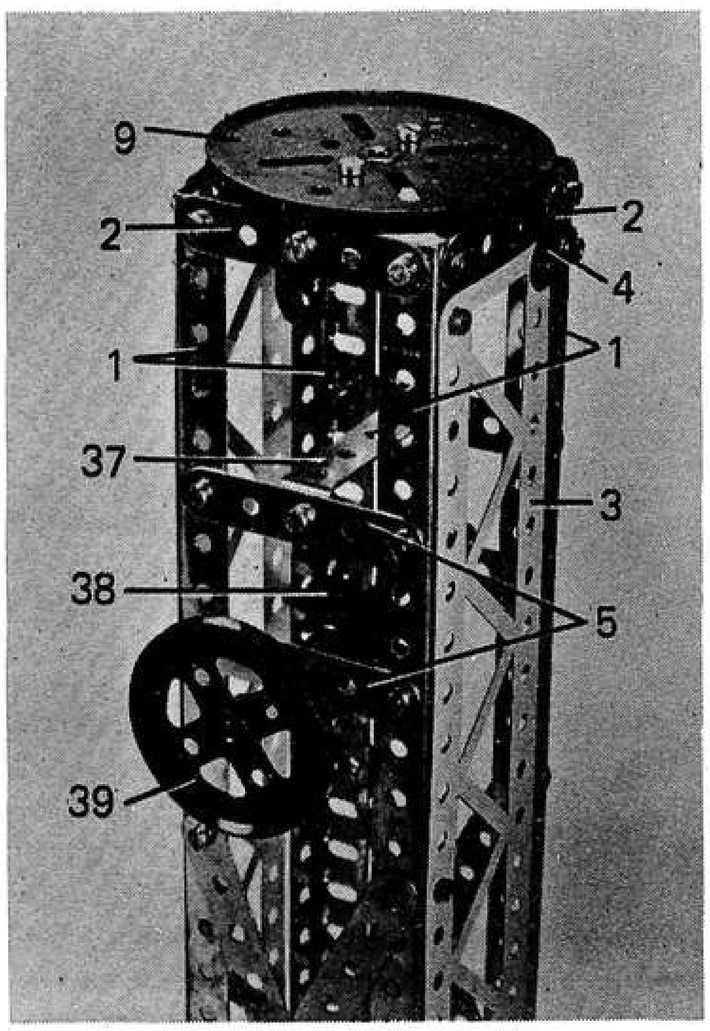
Bolted to the protruding lower ends of Braced Girders 3 are two more 5½" Strips 7, two further 5½" Strips 8 in turn being attached to the ends of these Strips, one being attached by Angle Brackets and the other by Double Brackets. This arrangement provides a reasonably steady base for the crane. At the top of the tower a 2½" x 1" Double Angle Strip is bolted between the centres of two opposite Strips 2 and bolted, in turn, to this is a 3" Pulley 9, boss downwards.

The crane platform is next built up from a 5½" x 2½" Flanged Plate 10, the side flanges of which are extended by two 12½" Strips 11. Bolted through the fourth holes of the Strips and Plate are two 9" compound strips 12 braced by 3½" Strips 13, the lower securing Bolt in each latter case also holding an Angle Bracket in place. Fixed to the spare lug of this Angle Bracket, and to other Angle Brackets bolted to each Strip 11 are two 5½" x 1½" Flexible Plates 14, overlapped six holes. Compound strips 12 are each built up from two 5½" Strips overlapped four holes. A lateral 5½" x 2½" Flexible Plate 15 is bolted between Plates 14, as shown.

Note that the Bolt fixing the rearmost Angle Bracket to each Strip 11 (through its ninth hole from the rear end) also helps to fix a 4½" x 2½" Flat Plate 16 to the Strip. At the rear, these Plates at each side are connected by a 2½" x 1½" Flanged Plate 17 and two 2½" x ½" Double Angle Strips 18, one above and one below the Flanged Plate. The right-hand connection in the case of lower Double Angle Strip 18 is made by a ½" Bolt on which a ½" plastic Pulley and a Rod and Strip Connector 19 are held by two lock-nuts. The lock-nuts should be sufficiently tight to prevent the Pulley and Connector turning freely, yet should allow them to turn if a fair amount of pressure is applied. A 2" Rod 20 is held in the Rod and Strip Connector, this latter serving as a brake lever.

The Bolts fixing upper Angle Strip 18 in place also hold two 12½" Strips 21 and two Obtuse Angle Brackets. Bolted to the spare lugs of the Obtuse Angle Brackets and to two further Obtuse Angle Brackets at the forward upper corners of Flat Plates 16 is the operator's cab roof supplied by a 4½" x 2½" Flexible Plate 22 curved to shape. The upper ends of Strips 21 are bolted to the upper ends of compound strips 12 the securing bolts also fixing a 2½" x ½" Double Angle Strip 23 between the Strips at each side. Held by Spring Clips in the fourth holes from the top of the compound strips is a 3½" Rod on which two 1" Pulleys with boss 24 are mounted. Note that one of these Pulleys is fixed to the Rod, while the other is free to rotate on the Rod being held in position by a Spring Clip.

A close-up view of the top of the main supporting tower with the superstructure removed.

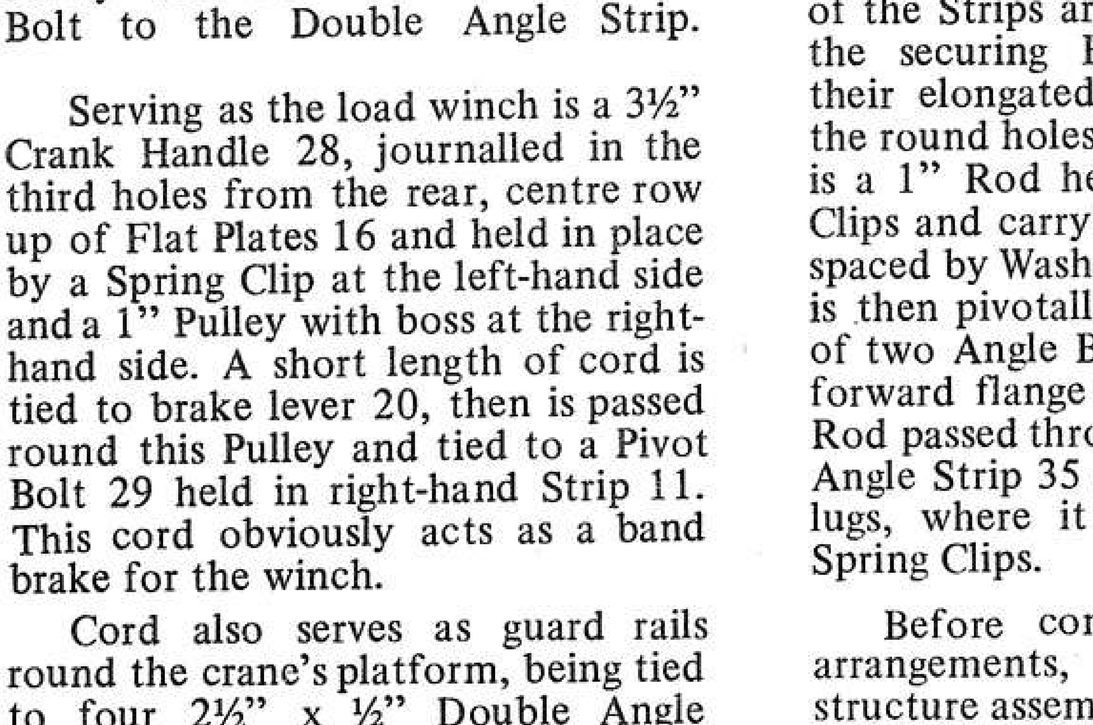


Jib and hoist control mechanisms are, of course, carried in the operator's cabin. The jib control winch is supplied by a 4" Rod journalled in the fourth holes, second row down of Flat Plates 16 and held in place by a Spring Clip at the right-hand side and a ½" Pinion 25 at the left-hand side. An 8-hole Bush Wheel, fitted with a Threaded Pin, is fixed on the right-hand end of the Rod to provide a winding handle. In mesh with Pinion 25 is a 57-teeth Gear on a 3½" Rod held by a Spring Clip in Flat Plates 16. The control cord will later be anchored to this Rod.

A "locking-switch" to prevent the jib cable unwinding accidentally is built up from a 1½" x ½" Double Angle Strip 26, extended rearwards by a Fishplate, at the same time bolting a 1" x ½" Double Bracket to the back of the Double Angle Strip. The unit pivots on a 4" Rod, journalled in Flat Plates 16 and passing through the lower end holes in the lugs of the Double Brackets. Spring Clips hold the Rod in place. The forward lug of the Double Angle Strip locates between the teeth of Pinion 25 and the 57-teeth Gear, a small weight to hold it in place being provided by a ½" Pulley with boss 27 fixed by a ½" Bolt to the Double Angle Strip.

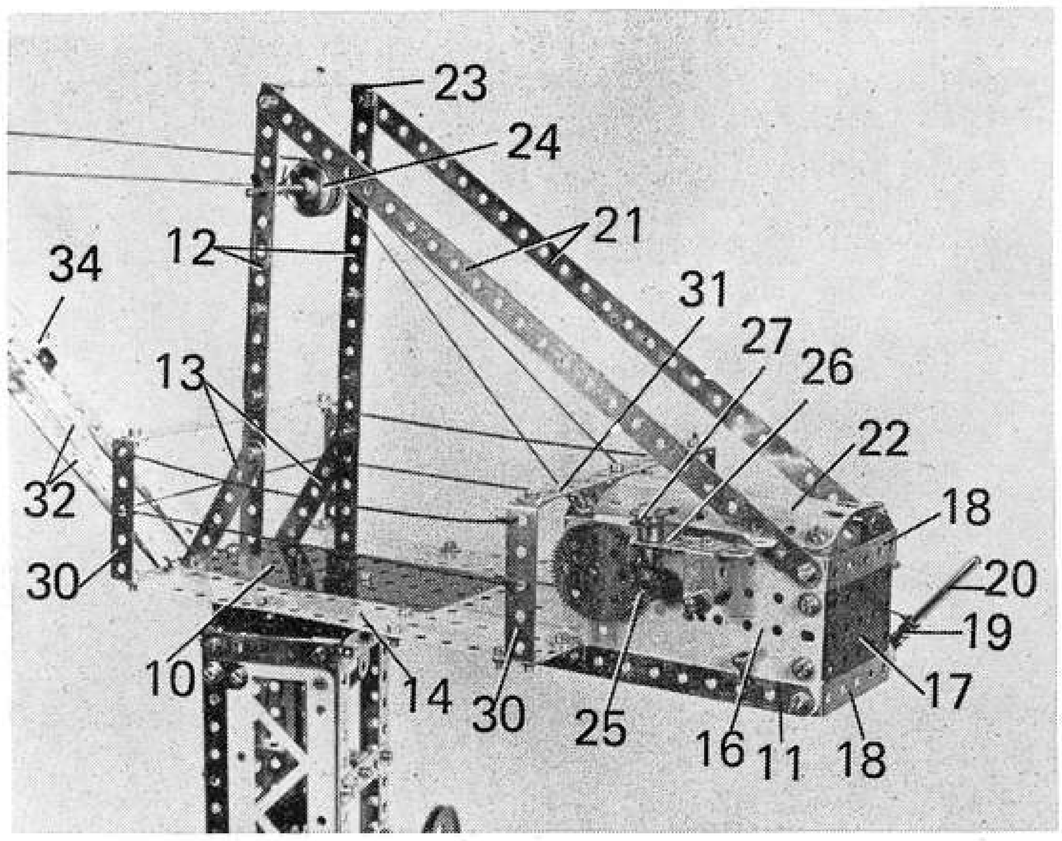
Serving as the load winch is a 3½" Crank Handle 28, journalled in the third holes from the rear, centre row up of Flat Plates 16 and held in place by a Spring Clip at the left-hand side and a 1" Pulley with boss at the right-hand side. A short length of cord is tied to brake lever 20, then is passed round this Pulley and tied to a Pivot Bolt 29 held in right-hand Strip 11. This cord obviously acts as a band brake for the winch.

Cord also serves as guard rails round the crane's platform, being tied to four 2½" x ½" Double Angle Strips 30 bolted to the outer corners of Flexible Plates 14. The upper lugs of the front and rear pairs of Double Angle Strips are also connected by two 5½" Strips 31, the centre of the rear



An underside view of the crane platform removed from its supporting tower. Note the use of Angle Brackets to attach the Flexible Plates to the Flanged Plate and 12½" Strips.

Opposite page, top: a general view of the completed Wharf Crane. Built from a No. 6 Meccano Set. Right: a close-up view of the crane platform with the control cabin. Note the built-up ratchet mechanism to prevent the jib cable unwinding accidentally.



Strip also being bolted to the front centre of Flexible Plate 22.

Turning now, to the jib, this is simply built up from two pairs, each of two 12½" Strips 32, centrally bolted to the lugs of a Double Bracket 33, the securing Bolts also fixing two 1½" Strips 34 between each pair of 12½" Strips. The rear ends of the 12½" Strips are bolted to a 1½" x ½" Double Angle Strip 35, while sandwiched between the upper ends of the Strips are two Angle Brackets, the securing Bolts passing through their elongated holes. Journalled in the round holes of the Angle Brackets is a 1" Rod held in place by Spring Clips and carrying two 1" Pulleys 36, spaced by Washers. The completed jib is then pivotally attached to the lugs of two Angle Brackets (bolted to the forward flange of Plate 10) by a 2" Rod passed through the lugs of Double Angle Strip 35 and the Angle Bracket lugs, where it is held in place by Spring Clips.

Before completing the cording arrangements, the complete superstructure assembly should be mounted on its supporting tower. Attached by ½" Reversed Angle Brackets to the underside of Flanged Plate 10 is a 3" Pulley, boss pointing upwards. Fixed in the boss of this Pulley is a 5" Rod which also passes, free, through the boss of Pulley 9 and through the centre hole of a 2½" x ½" Double Angle Strip 37 bolted between upper Strips 5. Secured on the lower end of the Rod is a Multi-purpose Gear which meshes with another Multi-purpose Gear 38 on a 4½" Rod held by Spring Clips in the centre holes of lower Strips 5. A 2" Pulley 39 is fixed on the end of the Rod to serve as a hand wheel controlling the slewing movement of the crane.

This finally brings us to the cording arrangements. The load cable consists simply of a length of cord attached to a Cord Anchoring Spring on the shaft of Crank Handle 28. The cord is taken over right-hand Pulley 24 and right-hand Pulley 36 in the jib head and a Loaded Hook is tied to the end. The jib control cord is wrapped around the previously-mentioned 3½" Rod in the control cabin, then taken over left-hand Pulley 24 and around left-hand Pulley 36, to be brought back and ultimately tied to a Fishplate 40 carried between Pulleys 24 on the same supporting Rod. We now have – or should have – one finished and working Wharf Crane!

PARTS REQUIRED

8 - 1	1 - 15a	1 - 24	2 - 53a
14 - 2	2 - 15b	1 - 26	1 - 57c
2 - 3	2 - 16	1 - 27a	2 - 99
12 - 5	2 - 17	2 - 27f	2 - 111a
2 - 6a	1 - 18b	14 - 35	2 - 111c
4 - 8	2 - 19b	128 - 37a	1 - 115
4 - 10	1 - 19s	123 - 37b	2 - 125
4 - 11	1 - 20a	24 - 38	1 - 147b
1 - 11a	4 - 22	2 - 48	1 - 176
12 - 12	2 - 22a	8 - 48a	4 - 189
2 - 12a	1 - 23	1 - 51	1 - 191
4 - 12c	1 - 23a	1 - 52	1 - 192
1 - 15			1 - 212

A LOOK AT...

LOVE'S LADDER-WORK

Bert Love describes how he has achieved high realism in his Block-Setter ladder-work

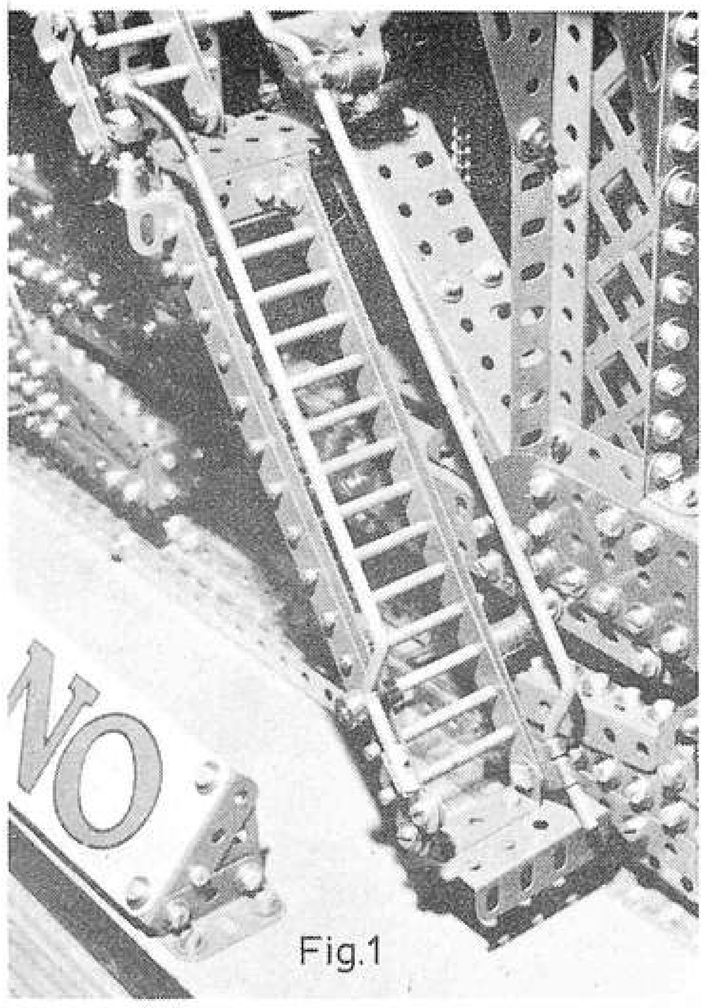


Fig.1

IN THE COURSE of his regular contributions to our pages, Bert Love has often described exhibition quality models built by members of the Midlands Meccano Guild. Bert is an accomplished modeller himself, however, and his own creations are also worthy of the highest praise – as witnessed by the Grandfather Clock featured in the last MMQ.

Bert gets quite a heavy post-bag on Meccano topics and he is often asked about the details which adorn many of his models. Among these is the ladder work and guard rails of his large remote-control Block-setting Crane which has been demonstrated in various parts of the country. Extensive use is made of short Axle Rods for the ladder rungs and many an exhibition visitor has asked how these Rods are kept in place as there is no evidence of this from an external view. The secret lies in the use of the Meccano Driving Band and a double thickness of Perforated Strips for the side members of the ladders.

Taking the thing in logical steps (writes Bert), Fig. 1 shows the first flight of rungs from ground level at the side of the crane base. The four 7½" Strips forming the ladder sides can be clearly seen and it will be noticed that they are spaced at top and bottom by 1½" x ½" Double Angle Strips. Closer inspection reveals that the Strips appear to be spaced slightly apart at each end of the rungs and therein lies the secret of the rung securing method. Ten-inch light Driving Bands are stretched between the top and bottom rungs, but the Bands are twisted once between each rung so that the Rods forming the rungs are held laterally by the grip from the rubber. Repeating the same fixing method on the other side of the ladder increased the holding effect and the net result is a ladder of very neat appearance, the rungs of which are held in place quite firmly.

Construction is quite simple, but needs a little patience. Begin with single Strips for each side of the ladder, bolting them loosely to the Double Angle Strips to give temporary spacing. Load up with 2" Rods as rungs and then put the loop of a 10" Driving Band (light) over the end of the top rung. Next loop the Band criss-cross all the way down the ladder, passing a loop over each Rod in turn. Now remove one fixing Bolt carefully and attach the second or outside Strip to one side of the ladder, laying it carefully over the ends of the Rods and re-fixing the Bolt lightly. Leave enough 'spring' in the outside Strip to remove and replace the lower Bolt and then carefully adjust the tips of the 2" Rods to protrude about a Strip's thickness on each side of the ladder frames. Screw up the Bolts holding the bottom and top ends of the ladder and this will sandwich and hide the Driving Bands which are trapping the rungs in place.

Fig. 1, above: first ladder flight showing use of Axle Rods for rungs and handrails. Note use of Rod and Strip Connectors for handrail support. Fig. 2, below left: details of first 'landing' to accommodate change in ladder position for overhang above. Note use of Flexible Coupling Units and Crank Handles to obtain smooth curvature. Fig. 3, below right: access to catwalk at top of fixed ladder and, Fig. 3b, diagram showing lacing of Driving Band

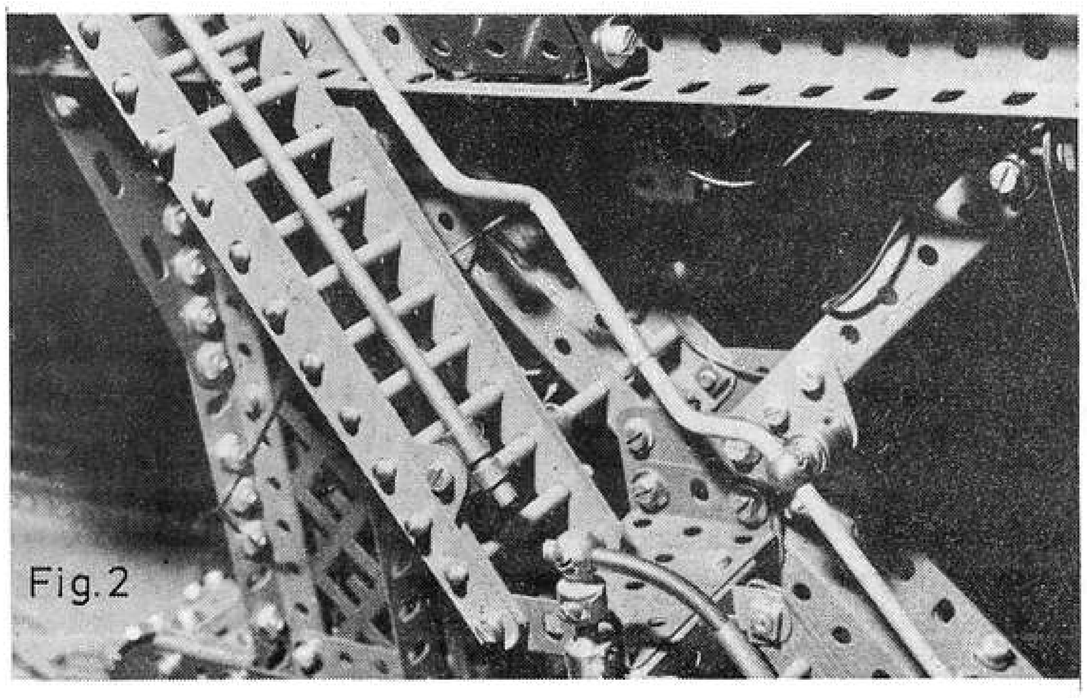


Fig.2

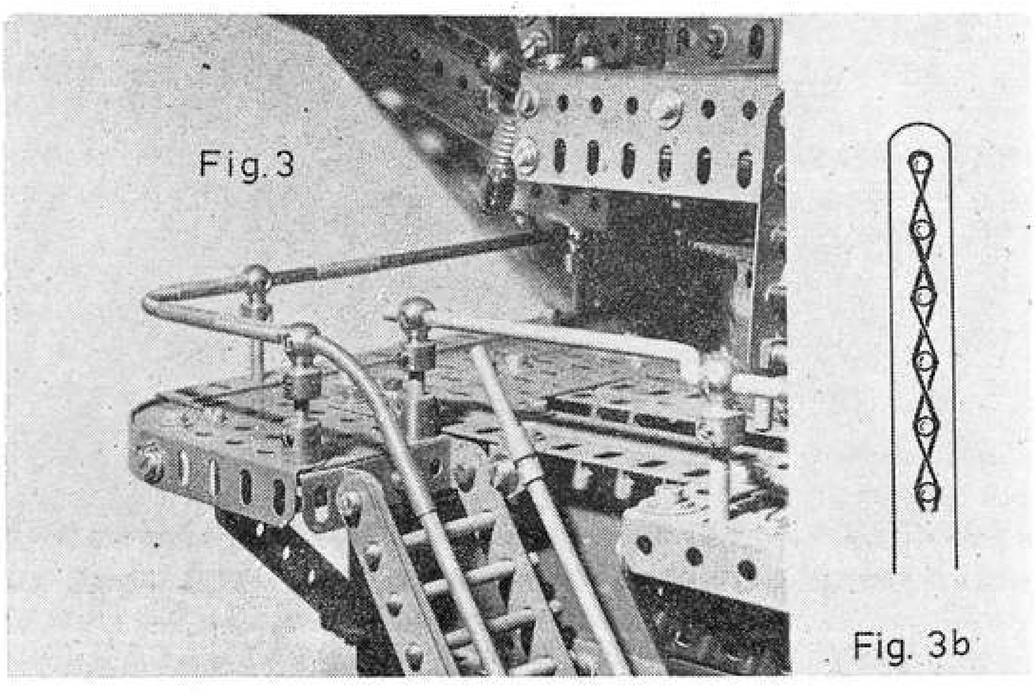


Fig.3

Fig. 3b

One method of assuring added rigidity in such a ladder is to provide an extra long rung in the shape of a longer Rod which passes through the ladder and is secured to the superstructure of the crane. Fig. 1 shows that rung No. 3 from the bottom is, indeed, a longer Rod secured outboard by a Collar and packed inboard with Washers before passing through a pair of 1" Triangular Plates bolted to the tower framework (not to the travelling bogies which should be free to ride up and down slightly).

The use of Crank Handles provides ideal contour for the handrails on the ladder, as can be clearly seen in Fig. 1. Careful choice of Rod and Strip Connectors provide securing points for the lower ends.

Moving on to Fig. 2, further details of the handrails can be seen near to the central platform or 'landing'. Rod Connectors and Flexible Coupling Units ensure a smooth flow to the rails and the support given by Handrail Couplings on short Rods holds the Flexible Units at the correct radius. Note the continuation of Crank Handles for the inside guard-rail. In Fig. 2, a pair of Crank Handles meet with their short ends joined by a Rod Connector which allows the upper Crank Handle to be twisted neatly to accommodate the overhang of the catwalk above.

Two more 1" Triangular Plates appear in Fig. 2, one being used inboard, bolted to the superstructure to carry a Threaded Boss into which a Handrail Support is screwed. The outer Plate has a right-angled Rod and Strip Connector sandwiched between the ladder side frames and supported by two rungs. Again, one of these rungs is a longer Rod passing straight into the girder work for additional ladder support. No external Collar is required here because the 'landing' is bolted directly to the crane superstructure and prevents any lateral displacement.

Fig. 3 continues the last stage of the tower ladder where it breaks through at catwalk level. The same construction is used for this upper ladder section as that for the lower, 7½" Strips and 2" Rods being the main components. This time, the lower end of the ladder is secured outboard to the 2½" x 1½" Flanged Plate forming the 'landing', while the inside leg is fixed to the Plate by an Angle Bracket. At the top, the ladder frames are again spaced by a 1½" x ½" Double Angle Strip. Inside, at the top, the third Crank Handle is held to the catwalk lip via a right-angled

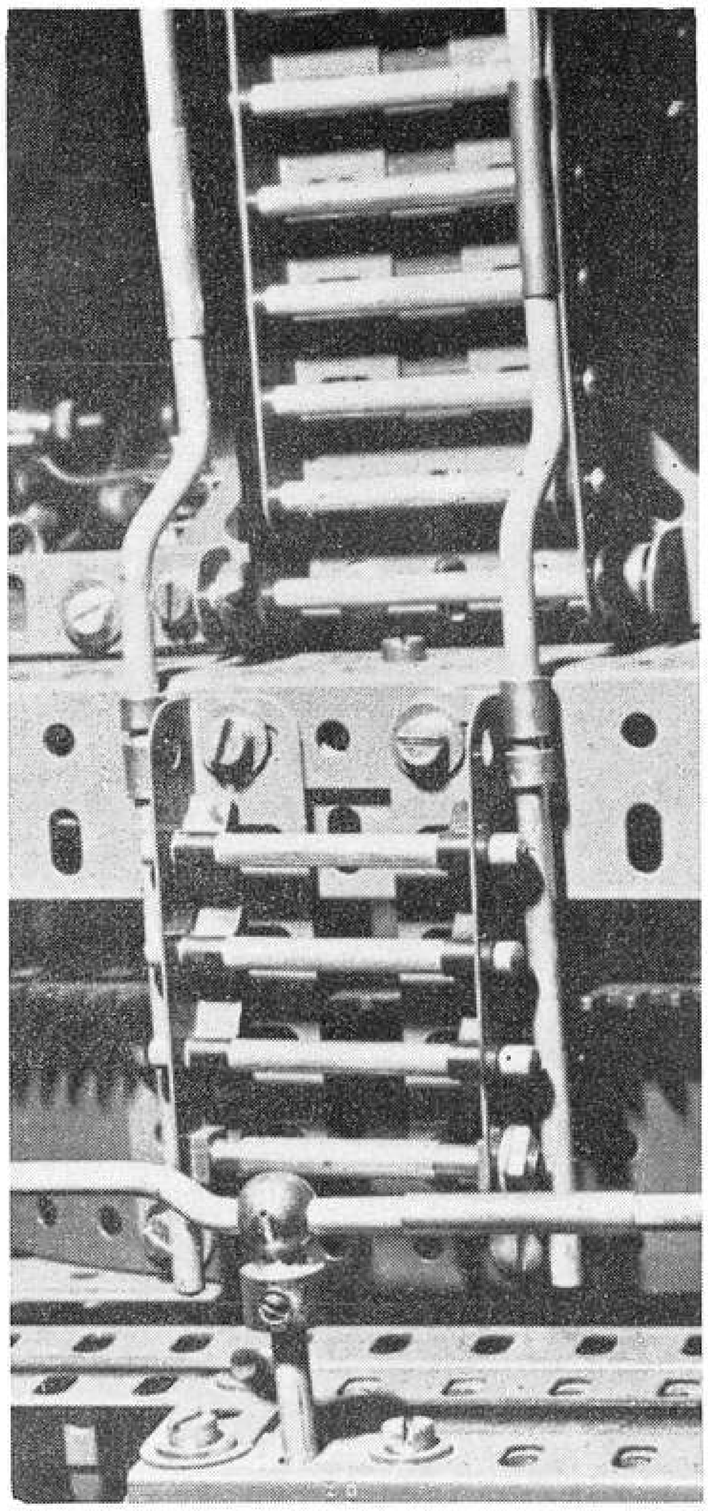


Fig. 4: alternative method of fixing Axle Rod rungs by means of Spring Clips in short lengths of ladder. Again, note use of Crank Handles for rail curvature.

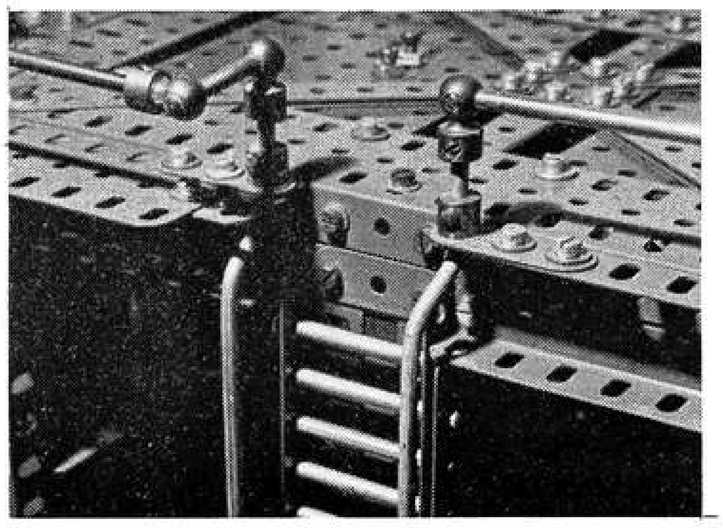
Rod and Strip Connector and an Angle Bracket. Extensive use is made of Handrail Couplings from hereon to hold the handrails, with curvature at the top of the ladder and on each corner of the catwalk being ensured by the use of Flexible Coupling Units and Rod Connectors.

Two methods of fixing the Rods forming the guard-rail stanchions are employed. At the top of the ladder, short Electrical Pivot Rods are mounted in Rod Sockets screwed through the Girders and 2½" x 2½" Flat Plate forming the upper platform step. Elsewhere, 1" Rods pass through the lip Girders of the catwalk where they are held in place by Double Arm Cranks bolted below the Girders. The inset drawing in Fig. 3 shows the lacing method for the Driving Bands.

Fig. 4 shows a different method of ladder manufacture – suitable for short runs. In this case a four-rung section was required up to the 'step' of the boom platform. A pair of 2½" Girders form the ladder rails and these trap right-angled Rod and Strip Connectors behind them at their upper ends. The 2" Rods are simply held in place by Spring Clips, but the bottom rung which spaces the lower end of this short section is a Rod Connector mounted between two Short Threaded Pins lock-nutted to the bottom holes of the two Girders. Note the use again of Crank Handles to follow the outline of the superstructure. The longer parts of the Crank Handles are held by the two Rod and Strip Connectors behind the short section of ladder and their upper ends are connected by Rod Connectors to yet another pair of Crank Handles. The vertical section of ladder running up to the boom deck is made from 5½" and 4½" Strips, one of each forming a sandwich pair for each side of the ladder. The same method of trapping twisted Driving Bands is adopted as for the lower main ladder.

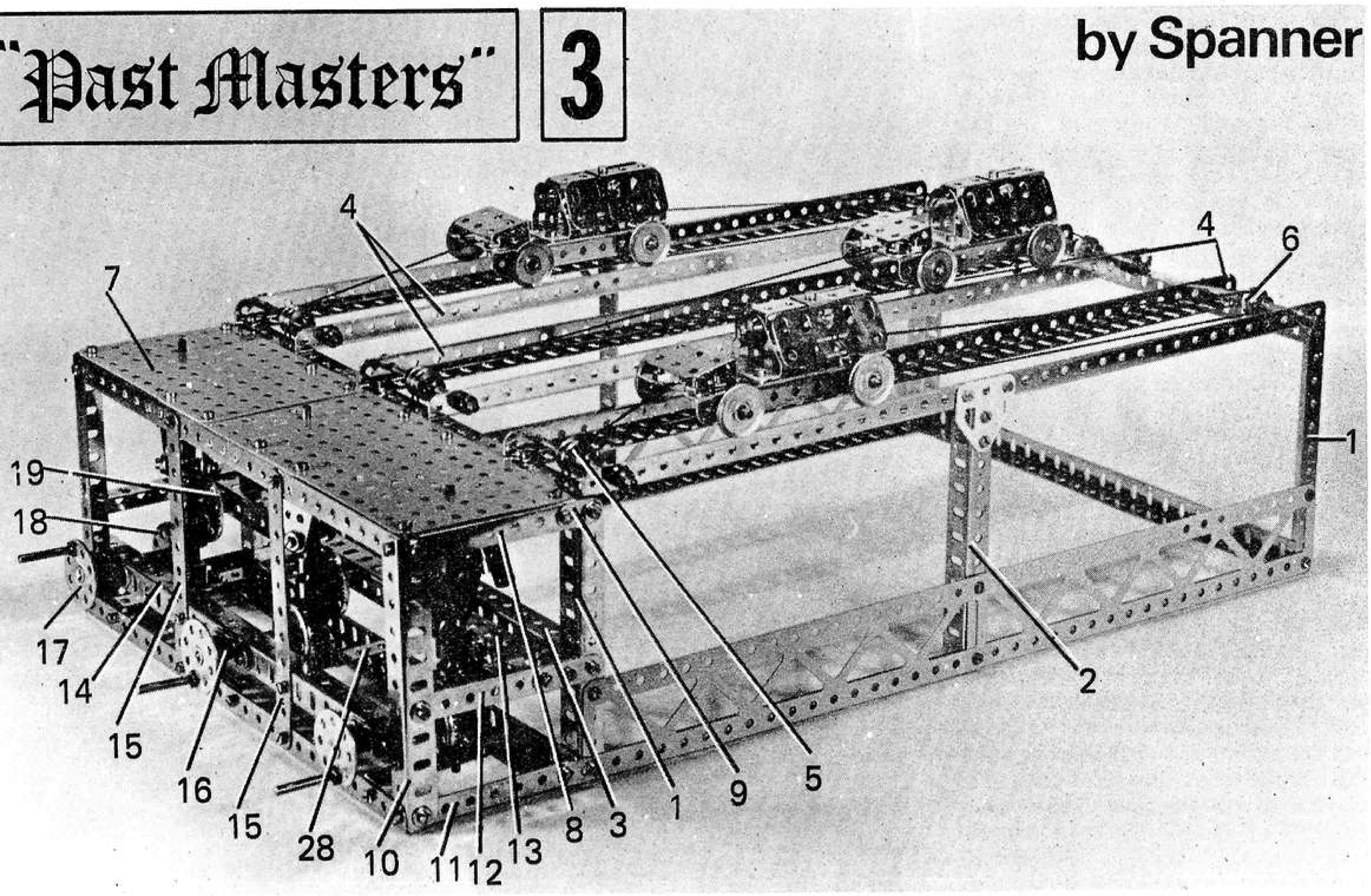
Finally, the last ladder section is finished off by passing the short ends of the last two Crank Handles forming the Handrails through the Girder edge of the crane boom, locking them into place by Cranks bolted from below. When capped with Handrail Couplings, the whole of the main guard-rails on the boom can be continued using long Rods and Rod Connectors. The stanchions for the guard-rails are again 1" Rods fixed in Double Arm Cranks bolted from below at intervals round the crane boom. To ensure a neat join at each stanchion, a short Rod is passed through the Handrail Coupling and fitted with a Rod Connector on either side. It is a simple matter to extend this by suitable Rods and additional Connectors to the next stanchion. If the shortest type of Grub Screws are available, these should be used in both parts of the Handrail Couplings to give a flush finish and, finally, a good polish with 'Brasso' etc., both on the steel Rods and the brass Couplings, will put a professional touch to the model.

Fig. 5: highest point of the ladder run leads onto the boom deck with a smooth run into the main guard rails of the crane boom. See text for general details of securing handrails by various methods.



"Past Masters" 3

by Spanner



RACE-A-WAY!

AS I SIT down to write this, the third in our series of interesting models from the past, it is the end of October. When you read this it will be January 1974 which – at least for those of us in the Northern Hemisphere – means the middle of Winter with its long, dark, cold nights. It is during the long winter evenings that Meccano modelling really comes into its own. Too cold, damp and dark outside, most of us like to spend the time in the warmth of our homes and, with time on our hands, what can be better than a truly constructive hobby like Meccano?

Sales talk aside, though, the model featured here has been specially chosen with winter in mind – and chosen not only for the Meccano modeller, but particularly for the children of the Meccano parent. As any parent knows, keeping the children amused during the long winter evenings can be a problem. Building this model will keep the parent occupied; the model, when built, should keep the kids happy! Rebuilt with some slight modifications from the September 1931 issue of Meccano Magazine, the model is a race game which was originally designed by Mr. H. Proctor of Preston, Lancs. Three racing cars are "driven" along the track, each independently controlled by its own "driver" winding a small hand-wheel at the front of the model. You might not think that there is anything particularly outstanding in this, but, in fact, things are not as simple as they might appear: the drive systems are governed so that the driver loses control of his car if he goes too fast!

CONSTRUCTION

Although a very entertaining model, the Race Game is by no means difficult to build. A box framework for the track section is built up from two 18½" x 12½" Angle Girder rectangles, joined together at the corners by 5½" Angle Girders 1 and further joined half-way down the sides by two more 5½" Angle Girders 2. Note that the upper ends of the latter Girders are bolted to Trunnions which are in turn bolted to the vertical flanges of the 18½" Girders in the upper rectangle. A 12½" Angle Girder 3 is bolted between the fifth holes up of forward Girders 1, then four 18½" Angle Girders 4 are bolted the length of the upper rectangle as shown to provide tracks for the racing cars. Two 3½" Rods are then journalled one in the second hole from each end of each pair of track Girders, being held in place by Collars. Held by further Collars on one of the Rods are two ½" loose Pulleys 5, while, on the other Rod, a single ½" loose Pulley 6 is held by Collars. Each side of the track frame is then completed by two 9½" Braced Girders, bolted in place as shown.

CONTROL MECHANISM

Only slightly more difficult than the track frame is the control mechanism support framework. Bolted "back-to-back" to the upper front 12½" Angle Girder in the track frame is a 12½" Angle Girder, to the horizontal flange of which are bolted three 5½" x 3½" Flat Plates, overlapped as shown to form a 12½" x 3½" compound flat plate 7. This plate is edged at each side by a 3½"

Angle Girder 8 which is also attached to the top of nearby Angle Girder 1 by a Fishplate 9. A 5½" Angle Girder 10 is bolted to the front end of Girder 8, the lower end of Girder 10 itself being attached to the lower end of nearby Girder 1 by a 3½" Angle Girder 11, extended by a Fishplate. A further 3½" Angle Girder 12, this one extended by a 1½" Strip, is used to connect Girders 10 and 1 through their fifth holes from the lower ends. Girders 12 at each side are themselves connected by a 12½" Angle Girder 13 bolted between their sixth holes.

At the front of the model, Girders 10 at each side are connected at top and bottom by further 12½" Angle Girders and through their third holes up by another similar Angle Girder 14. Two 5½" Strips 15 are then bolted to all these Girders to partition the front of the model into three sections.

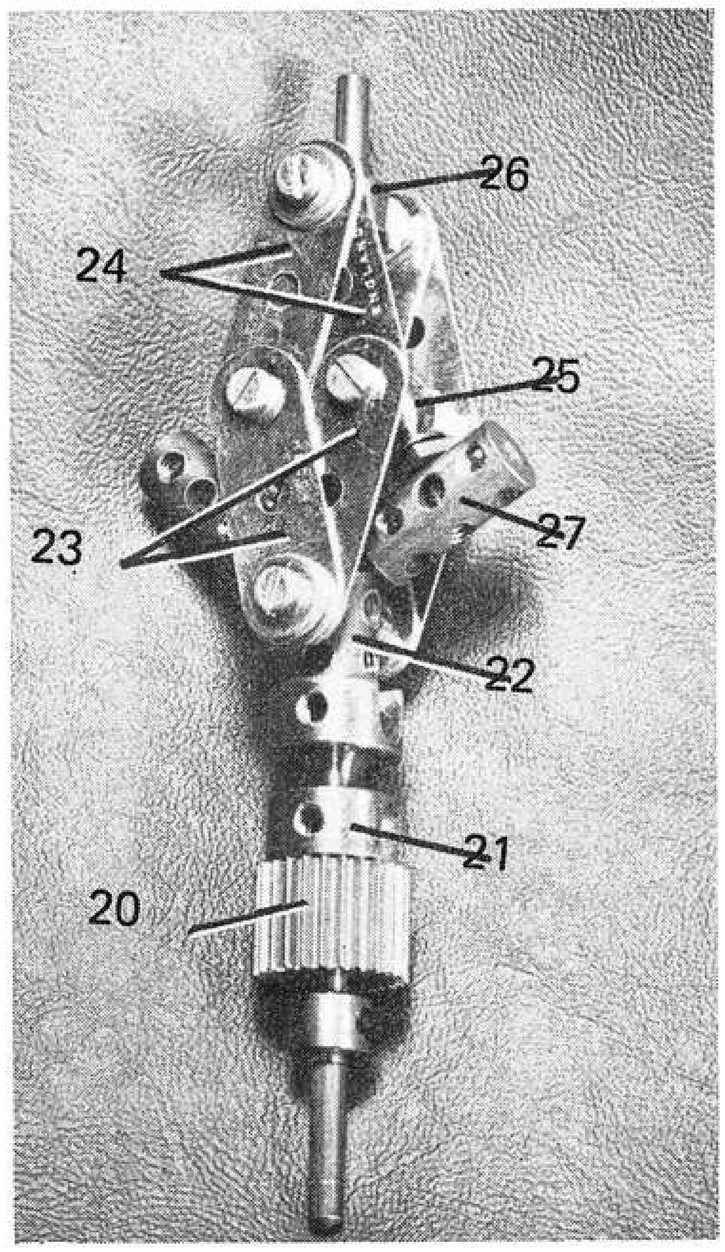
Now bolted to the front of Girder 14 in the positions shown are three Double Arm Cranks 16, the securing Bolts in each case also fixing a Double Bent Strip to the back of the Girder. Journalled in this Double Bent Strip and in the boss of each Crank is a 2" Rod, held in place by an 8-hole Bush Wheel 17 and carrying behind the Double Bent Strip, in order, a Washer, a Collar, and a 1½" Contrate Wheel 18. A Long Threaded Pin is secured to the Bush Wheel to serve as a driving handle. In a vertical line with, but higher than, each 2" Rod is a 2½" Rod, journalled in Angle Girders 3 and 13. Note that the Rod actually passes through the circular hole of a Fishplate bolted to Girder 3 – necessary because the elongated holes of the Girder are facing the Rod in this case. A 1½" Contrate Wheel 19, spaced by a Washer, is fixed on the inner end of the Rod, while a Collar and a ½" Pulley with boss are fixed on the other end of the Rod behind Girder 3.

GOVERNORS

Positioned between the two Contrate Wheels mentioned above, in each case, is a governing mechanism. This is built up from a 5" Rod, on which are carried, from bottom to top, a Collar and ¾" x ½" Pinion 20, this being free to turn on the Rod, but held in the lower end of a Socket Coupling 21, in the upper end of which a Coupling 22 is held. The Socket Coupling and Coupling are also free on the Rod. Two pairs, each of two 1½" Strips 23, are pivotally attached to opposite sides of Coupling 22 by ¾" Bolts. Each Bolt is fitted with two Washers, is passed through the lower end holes in the Strip, is fitted with two Nuts, locked together, and is then screwed into the upper transverse bore of the Coupling. The inner lock-nut prevents the shank of the Bolt from fouling the Rod. Note that the Strips must pivot very freely on the Bolt shank.

Lock-nutted to Strips 23 are two more 1½" Strips 24, the fixing 3/8" Bolts also being screwed into the threaded bores in the head of a Handrail Support 25, after first being fitted with the two lock-nuts. Note that Strips 24 must also pivot freely in relation to Strips 23. The upper ends of each pair of Strips 24 are themselves lock-nutted together, the securing Bolts in this case being screwed into the threaded bores of a Collar 26, after first being fitted with lock-nuts. Note that, in this case, the Bolts must grip the centre 5" Rod. Held by a lock-nut, on the threaded shank of each Handrail Support 25 is another Coupling 27, the Handrail Support shank being screwed through the centre tapped bore of the Coupling.

The completed governor is positioned in the framework, the centre 5" Rod being journalled at the top in the appropriate hole in compound plate 7 and, at the bottom, in the

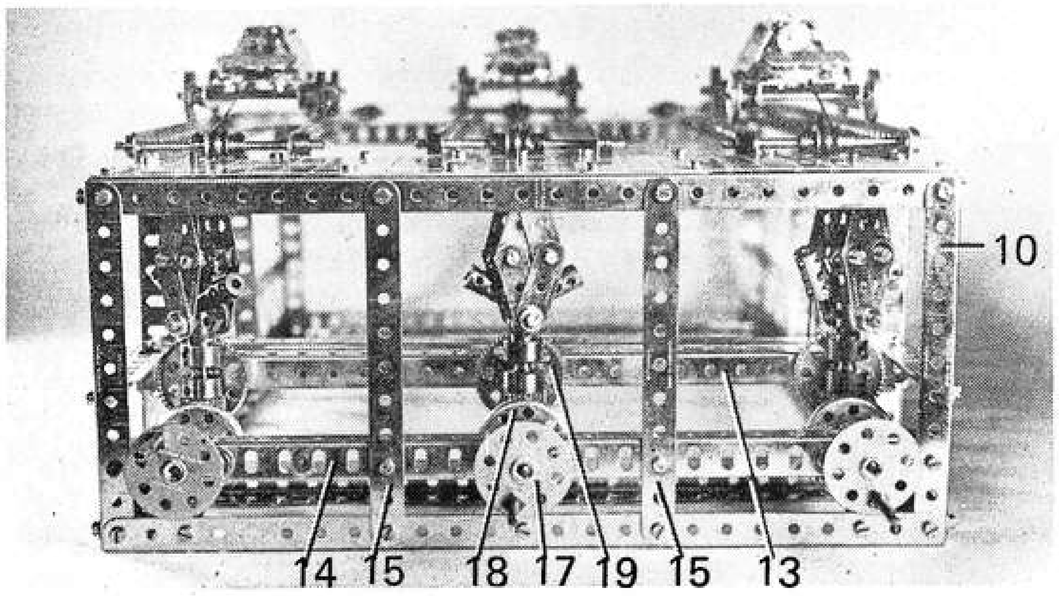


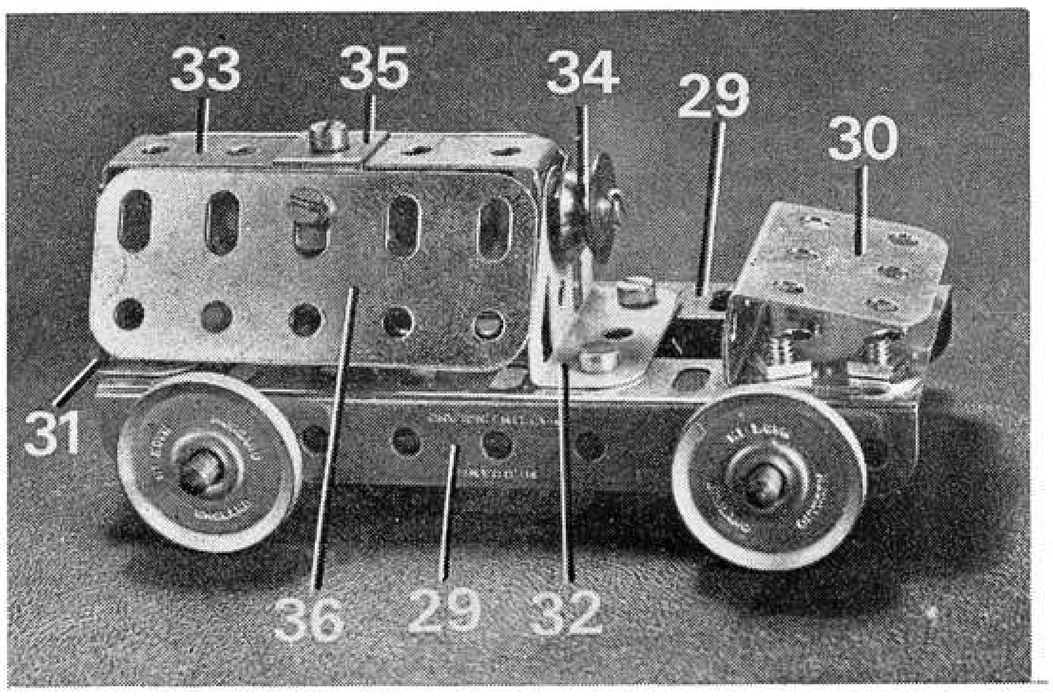
One of the three governing mechanisms removed from the Race Game. Note the ¾" x ½" Pinion 20.

centre hole of a 3½" x ½" Double Angle Strip 28 bolted between the lower lateral 12½" Angle Girders and in a ½" Reversed Angle Bracket bolted to the Double Angle Strip. With the governor at the rest position, Pinion 20 should now mesh with both Contrate Wheels 18 and 19. However, when the driving handle 17 is turned, the governor should revolve, thus causing the Pinion to rise up its supporting Rod. Consequently, if the driving handle is turned too fast, the Pinion will be lifted so far up the Rod that it disengages with Contrate 19 and this in turn disconnects the drive to the car.

continued on Page 19

Opposite page: a general view of an exciting Race Game re-built from the September 1931 M.M. Below left: a close-up view showing the control handles and governors. Below right: one of the three simple, yet functional, racing cars.





MOTORISING MULTIKIT®

with the help of reader's models, MIKE NICHOLLS shows how easy it is to fit motors to Multikit vehicles

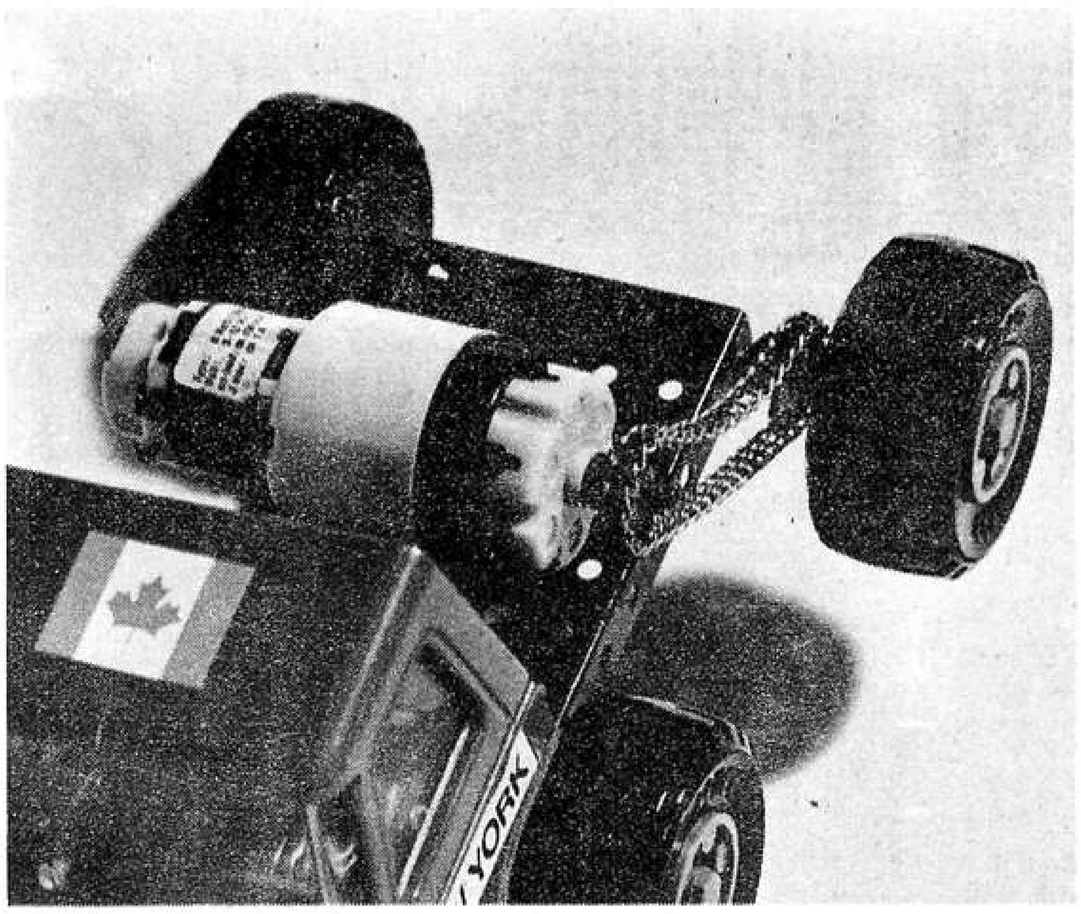
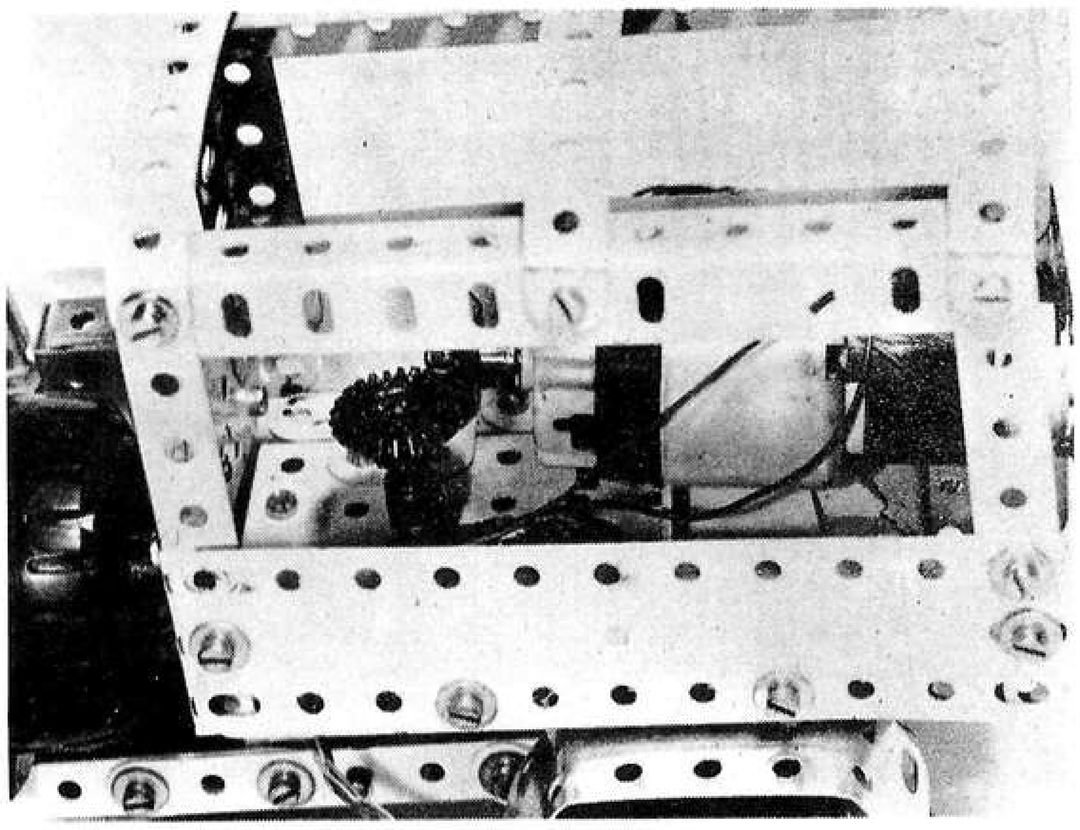


Fig. 1, above: a very simple, yet highly effective way of motorising a Meccano Multikit model, using Sprockets and Chain. The model was built by Gordon Plant of Henley-on-Thames.

Fig. 2, above: a model Unimog built by Iain Mitchell of Wooburn Green, in which the driving motor is built into the back of the model. In Fig. 3, below, the model can be seen with its 'tarpaulin' cover removed to show the position of the motor and the first stage of the drive, in this case using Bevel Gears.



IN THE FEW months that Meccano Multikit has been available, the demand for these novel outfits has been phenomenal. Many adults who thought that the Multikit sets were "just kids' stuff" have been pleasantly surprised when proved wrong on trying them. The Multikit is complete in itself, but has possibilities that extend to the limits of your imagination.

I think most people would agree that the Multikit manuals are very fine indeed, with their full-colour, step-by-step instructions, but, like all Meccano manuals, they are only a springboard; the most satisfying models are the ones you design, or adapt yourself.

One of the first things that spring to mind when thinking of extending a Multikit, is motorization. Although no motor is supplied with either the Highway or Army Kit, any Meccano motor may be successfully employed in a Multikit model.

Much has been said about the 'chunky' Multikit Wheels and the knurled Axle Rod. The Multikit Wheel is a push-on type and, originally, the Axle Rods supplied in the kits for use with these Wheels had knurled ends to provide extra grip within the wheel. However, it was found that the knurling increased the diameter of the Axle Rod ends to such an extent that Gears or Pulleys could not be pushed on. This led to the introduction of the 'Mark II' knurled Axle which had reduced knurling and allowed the application of bossed parts. This answer was found to be not entirely satisfactory, so the Wheel itself has been modified, and is now a good tight fit on the standard Axle Rods being supplied with the kits. Whichever combination of Wheel and Axle that you have in your Multikit, it is entirely suitable for motorization, as we shall see.

If a Multikit Wheel becomes slack, a short length of Sellotape should be applied to the ends of the Axle before inserting it into the Wheel. A Wheel should never be twisted on or off a knurled Axle, as this will cause wear on the inside of the Wheel, leading to a sloppy fit.

Fig. 1 shows a very simple motorization, where the builder (Gordon Plant of Henley-on-Thames) has simply fixed a Motor-with-Gearbox onto the back of a truck and connected the output shaft to an Axle by means of a Sprocket Chain. Gordon has, incidentally, used 'Mark II' knurled Axle Rods on this particular model.

The motor can, of course, be built into the rear of the vehicle. An example of this can be seen in Fig. 2. In this model of a Unimog, the builder (Iain Mitchell of Wooburn

Green) has supplied the back of the vehicle with a 'tarpaulin' cover made of cloth, (Meccano blue, of course!) With the back uncovered (Fig. 3) we can see how Iain has mounted the Motor. The drive is taken vertically through the floor by two Bevel Gears (Part No. 30). The 2½" Axle Rod is journalled in a Crank and, underneath the model (Fig. 4), the Rod carries a Worm which meshes with a ½" x ¼" Pinion on a 2" Axle Rod which also carries two 1" Pulley Wheels which drive the front and rear Axles by means of Driving Bands. Iain's model uses standard Axle Rods to carry the Wheels.

If you have an early Multikit with 'Mark I' Axles, which do not accommodate bossed parts, there are two ways out of this difficulty. You can revert to standard Axle Rods with Sellotape on the ends as suggested earlier, or you can follow the example of Frank Palin (of Tunbridge Wells) whose model is illustrated in Fig. 5. As you will see, Frank has fitted Part No. 187 Road Wheels from the standard parts range to his model and, if we look underneath (Fig. 6), we can see that the truck is driven by a 'Magic' Clockwork Motor slung from the underside. A Driving Band transmits the drive from the output pulley on the Motor to a 1" Pulley (Part No. 22) carried on a 2" Axle Rod journalled in two ½" Reversed Angle Brackets (Part No. 311). These Brackets are bolted to the two Curved Strips (Part No. 313) which act as the journals for the rear Axle. The 2" Rod also carries a 7/16" Pinion (Part No. 26c) which meshes with a 50-teeth Gear Wheel (Part No. 27) on the rear Axle.

Before leaving Frank's model, I should like to draw attention to the Ackermann-type steering which has been fitted. The steering on this particular model is not controlled from the 'topside', but none-the-less, it shows that a little ingenuity can improve Multikit models greatly Indeed, I have seen a Multikit model that had *powered* steering, as well as forward and reverse drive, all remotely controlled!

I have only illustrated Highway Multikit models, but of course the Army Multikit models – both the wheeled vehicles and those with caterpillar tracks – are just as suitable for motorization.

* * *

With Multikit, we saw the introduction of the Hexagonal Nut (No. 329, brass-plated for Highway Kits, and No. 427, black for Army Kits). The Hexagonal Nut is now very gradually being introduced into the standard parts range. The new version of the Hex Nut, which will eventually supersede the familiar square 37a, is bright zinc-plated, like the current Strips, Angle Girders, etc, and is numbered 37c; however, it will be some time before the square Nut ceases to be available.

Other changes to the standard parts range are as follows: the hexagonal Spanner (No. 34c) will eventually replace the ordinary No. 34, and a version of the Box Spanner (Part No. 34b) with a hexagonal centre ihole will replace the earlier version. Similarly, a hexagonal version of the combined Spanner/Screwdriver (Part No. 34a) will replace the now-obsolete square version. The wooden-handled Screwdriver (36a) is now obsolete and will soon be replaced by the Multikit-type Screwdriver (34b). Modified versions of the Threaded Pins (115 & 115a) are also planned to bring them into line with the hexagonal change-over. The 4¼" Road Wheel (187b) has also been withdrawn from the system.

All these are small modifications, but they show that Meccano is regularly up-dated – a living system!

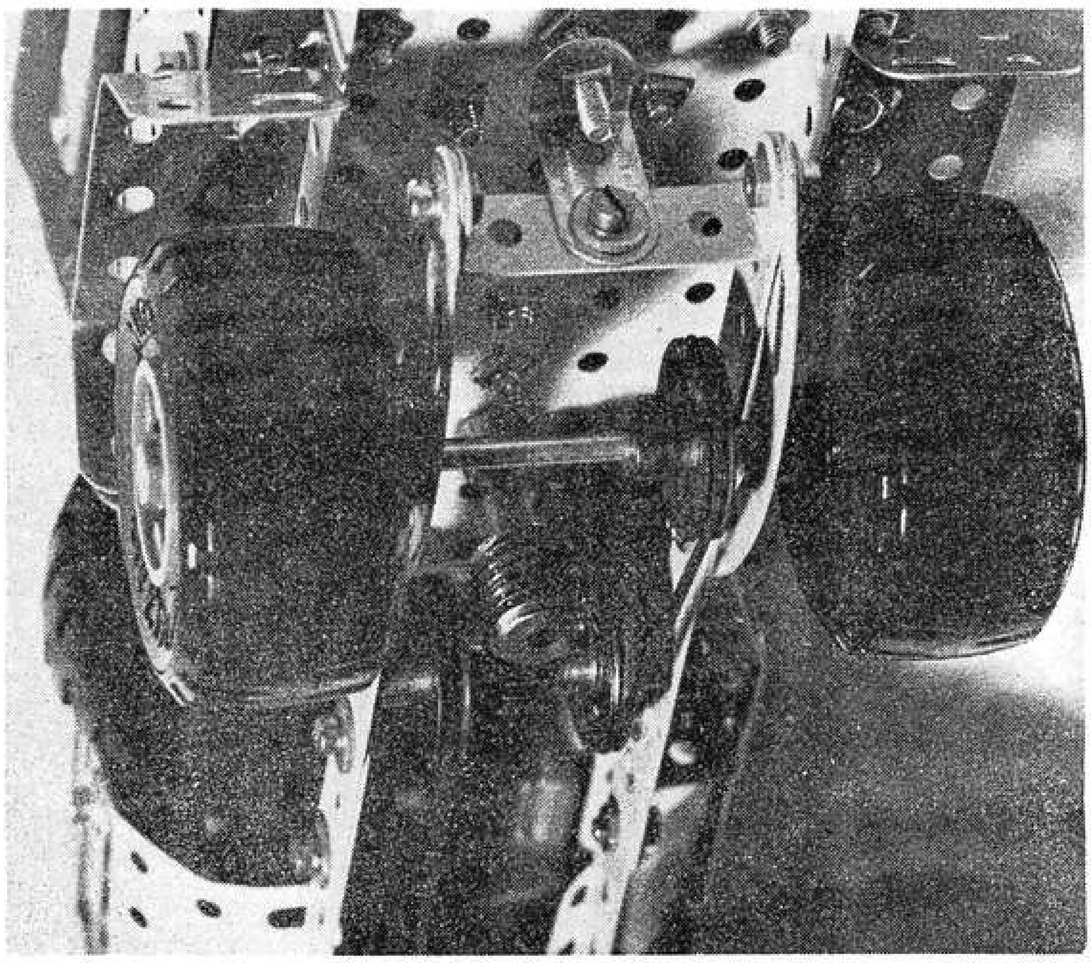
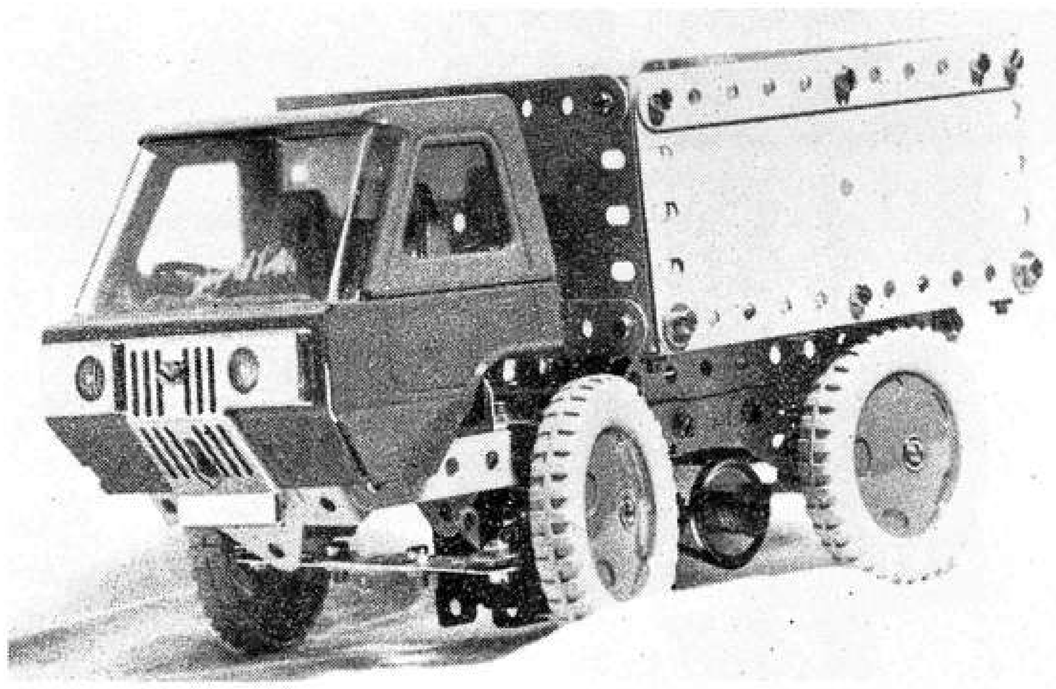
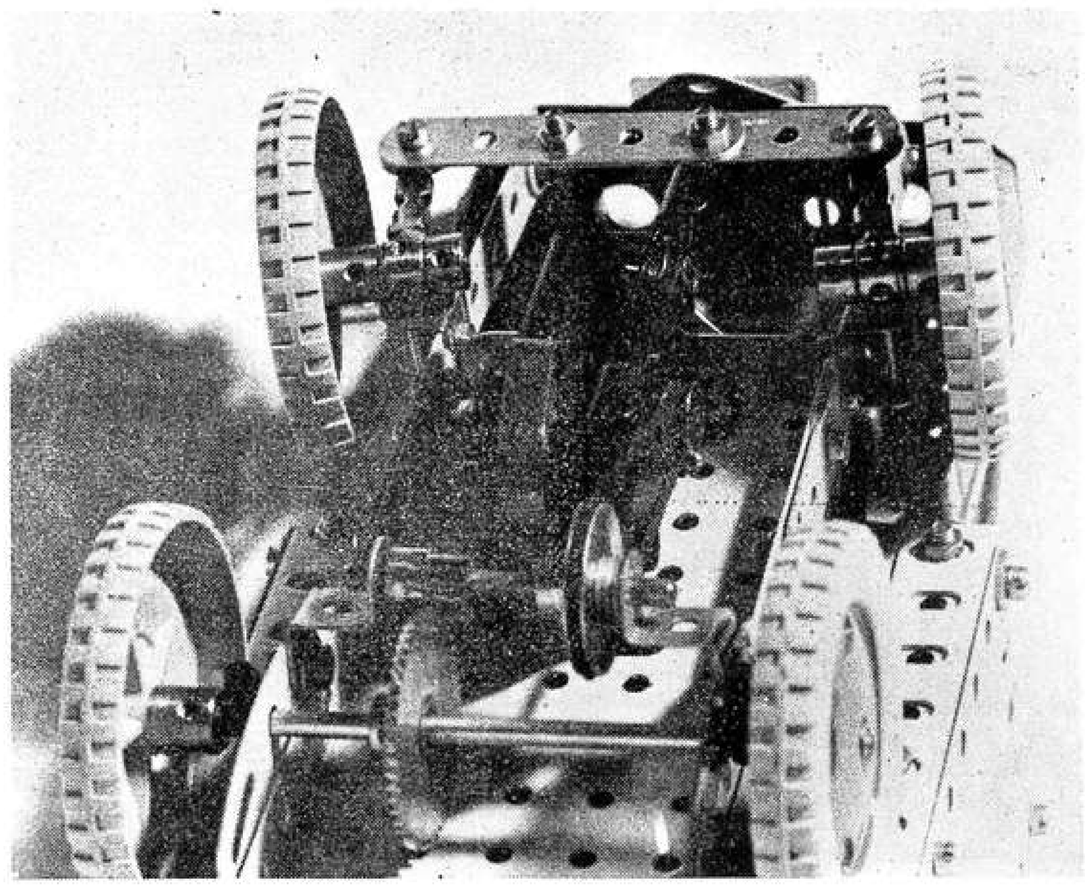


Fig. 4, above: an underside view of Iain Mitchell's Unimog showing the final drive to both the front and rear wheels using a Worm and Pinion and Driving Bands.



Standard Meccano parts may of course be used with Multikit models as is shown by the lorry picturedin Fig. 5, above. Here, Frank Palin of Tunbridge Wells has used standard Road Wheels in place of the special wheels supplied with Multikit. The underside view of the model in Fig. 6, below, shows that it is powered by a Magic Clockwork Motor.



MECCANO CLUB ROUNDUP

This feature, bringing news from Meccano Clubs around the world, will be included in every edition of the MMQ. We invite all Meccano Clubs to submit regular reports for publication, these being approximately 300 words long. They should reach us, at the latest, by the end of the second month before the month of publication: e.g. reports for the April issue should be in our hands by the end of February. We hope that all Clubs will keep in regular contact.

Owing to unforseen difficulties, we have been unable to include a report from the Cape Town Meccano Club in this issue. However, we are pleased to include this photograph, taken at a 1973 meeting of the Club, showing some of the hard-working members. Back row (left-to-right) Mr. A. E. F. Spence, Tatchel Venn, Richard Schonegeval and Colin Cohen (Hon. Sec.); front row (left-to-right) Marion Cohen, Pam Venn and Michael Adler(Chairman.)

ACORN MECCANO CLUB

My two years experience as an adult member of the Stevenage Meccano Club showed me what a marvellous hobby Meccano is for youngsters. So, early in 1973, I tried introducing Meccano modelling into the activities of our local church junior youth club.

Two lads gave their full support during the early days – Sean Milsom who is 13 and Damion Lavelle, who is 11. Later recruiting efforts at the youth club brought no more members, and so the net has been widened to take in the older junior boys from the local school. At the last meeting we enrolled two new members, Stuart Devereux and Adam Flower, as a result of the Headmistress's appeal on our behalf.

Our meetings take the form of building sessions, as do the Stevenage Club meetings. Our stock of parts has grown nicely since we began: all parts are donated by well-wishers and are communally held. The lads have their own sets as well, of course, and are encouraged to bring their models to meetings to show them to other members.

We hope to put on a few displays once we have some models built, and the first one, at the school "open day", should have taken place by the time this report appears in print.

The fact that we have had to survive such a small beginning has led to our adopting the temporary name of the Acorn Club; we hope that, like an acorn, we have great potential for growth!

Bernard Dunkley.

(Readers interested in joining the Acorn Meccano Club should contact Mr. Dunkley at 15 Shakespeare Road, Mill Hill, London NW7 4BA).

CHRISTCHURCH MECCANO CLUB

After starting rather poorly, 1973 is finishing probably as one of the most exciting and productive years in the history of the Christchurch Meccano Club. Although, this year, we could not exhibit at the "Industries Fair" because of exorbitant charges for our previously-free site, we have more than made up for it with a total of four public displays and one New Zealand-wide television appearance. We have just had our fourth display, at the "Sydenham School Fair" on November 3rd.

Neil Pluck and Bob Boundy, after overcoming many small problems, have now almost completed their Showmans Traction Engine (mentioned in the October M.M.Q.) apart from a few minor details. It is a very impressive model with its piston and valve gear working very realistically. It also has a working dynamo fitted and has drawn a lot of attention at the last two displays.

As this year draws to an end with only three more meetings left, 1974 looks to hold even more excitement for us: Bob Boundy has just finished negotiations for us to hold a week-long display at the "Christchurch Building Centre". This to be from 11th – 15th February, and we have been allocated approximately 250 square feet of display space.

There are going to be some very busy club members in Christchurch over the next 2½ months!

Kingsley Burrell

(We would like to apologise most sincerely for referring to Mr. Peter Askew of the Christchurch Meccano Club as Mr. Peter Aspear, in the October issue of the M.M.Q. –The Editor).

HENLEY SOCIETY OF JUNIOR MECCANO ENGINEERS

Now well established, the Society has a membership list that grows weekly! At the October meeting, many fine models were brought by members, including a very tall Crane built by Timothy Ball, a Steam Excavator by John Mildenhall, a Stage Coach by Peter Roberts and a pair of Vintage Cars by Christoper Reeve. Members gave short talks on their models, explaining any difficulties that they experienced in the building.

Alf Reeve of the Henley-Society of Meccano Engineers then gave a talk about Beam Engines and their design. Alf explained how Watt's Parallel Motion works, illustrating his talk with a very fine Meccano Beam Engine of his own design. This model was much admired at subsequent meetings of three other Meccano Clubs.

At the November meeting, the highlight of the afternoon was the judging of a "Simplicity Model" competition. The prize (a complete set of 1960 style Meccano Manuals) was donated by Ernie Chandler, Chairman of the Midlands Meccano Guild, who also judged the many entries. Ernie said that it was very difficult to decide which model was the best as they all deserved a prize, but he finally presented the prize to Peter Roberts of Godalming, Surrey, for his excellent model of a Ballerina, whose skirt was a 1½" Contrate Wheel.

Another competition was set, this time for the best model of an animal of any description, to be judged at the February meeting. Meanwhile, the Club will be meeting on the first Saturday in each month, and young enthusiasts who would like to join should contact me at 165 Reading Road, Henley-on-Thames, Oxon.

Mike Nicholls.

HENLEY SOCIETY OF MECCANO ENGINEERS

The November meeting was notable for the appearance of interesting variations on the Multikit theme. Adapted to represent actual prototypes, a "Unimog" normal control truck was shown by Iain Mitchell, and a most realistic First World War Tank was constructed from an Army Multikit by Kim Fisher. Tom Marlow showed an impressive Dock Crane based on a prototype at Portsmouth Harbour, and two variations of the pre-war Pontoon Crane were in evidence; one, built by Dennis Thomas from the original Supermodel Leaflet made an interesting contrast with a conjectured reconstruction of a different version with one motor, which was depicted only in part in the 1931 "Standard Mechanisms" book, built by John Hanby. Paul Jack showed the No. 10 Set Double Decker Bus, capably driven by a Motor-with-Gearbox instead of the usual E15R.

Meccano personalities, Ernie Chandler and Esmond Roden from the Midlands Meccano Guild, and Tony Homden from the Holy Trinity Meccano Club travelled long distances to be present.

It was decided to hold the next meeting on 2nd February 1974, and interested modellers are welcome to contact me at 165 Reading Road, Henley-on-Thames, Oxon, for further details.

Geoff Wright.

HOLY TRINITY MECCANO CLUB

The ninth and most successful meeting of the Club took place on Saturday, 17th November at the Parish Church Hall, Hildenborough. Attendance was outstanding and included guests from both the Senior and Junior Henley Societies and from the Stevenage M.C.

At 3.00 p.m. members and guests seated themselves for the Annual General Meeting and the Club's President, Stuart H. Wilson, opened the meeting with a warm welcome to all in attendance, and expressed his delight at seeing so many. After Stuart's welcome, Tony Homden, the Club Secretary, added his greetings and began the proceedings with the Club accounts situation. The date of the next meeting was then discussed, and it was agreed that this should take place on 27th April, 1974, subject to the hall being available. Finally, it was decided that Tony Homden should continue as Club Secretary, and the "officers" should remain unchanged in 1974.

Next on the agenda was a demonstration of some of the many models (over in all) that members and guests had brought along. The first person to take the stage was Frank Palin with a highly-modified Lorry built from a Highway Multikit. Other models shown were a World-War-One German Howitzer by Geoff Davidson, a Traction Engine by Peter Salsubury, a mini Blocksetter by Michael Martin, a Motor Chassis by Stuart Day and a Butlers Monotower Crane by Phil Bradley. A Mechanical Hand was shown by Tony Homden, an ingenious and highly amusing Gambling Machine by new member, John Burke, a group of models built from current No. 10 Set Leaflets by Roy Senior and, finally, a Foden Steam Lorry by Tim Everest. Members and guests then moved around the hall, examining models in detail and looking at those that had not been personally demonstrated.

The Henley and Stevenage Clubs exhibited some fine models, and it is to be hoped that they will come to future meetings at Hildenborough.

Tony Homden.

MIDLANDS MECCANO GUILD

SATURDAY, 29th SEPTEMBER, was yet another M-day for some 40 enthusiasts from all over Britain who made the pilgrimage to Alcester, Warwickshire, for the 13th meeting of the MMG. Unfortunately, the principal Guild Officers were unable to be there "for the off", so the undersigned marshalled the modellers and encouraged all who wished to give a short talk on their model.

A number of the models on show have been mentioned already in the MMQ, some having made their debut at either Stoneleigh or Henley exhibitions. However, all members were pleased to see, if again, such masterpieces as Tony Homden's Robot Arm or Manipulator, Paul Blythe's Bolt Sorting Phantasia, Clive Hine's slide Loading Fork-lift Truck, etc.

New member Michael Walker was welcomed, along with his large intricate, American Car (see July MMQ, p.28).

Models getting what is thought to be their first public outing included a multi-cylinder Beam Engine by Alf Reeve, no fewer than four Orreries from the screwdriver of Alan Partridge, who explained the limitations of earlier designs, which he has overcome in his latest, an improved version of SML 35 (Level-luffing Crane) from Roger Wallis, a well proportioned Block Setter (about ¾ the size of SML 4), driven by the Meccano Steam Engine, from Michael Martin, and a Lorry-mounted

Crane from John Nuttall, the latter model being completely freelance and incorporating 7 differentials in the drive to its 8 wheels.

Ralph Clark, renowned for his modelling of steam locos, usually to 1/12 scale, had to resort to 1/23 scale for his American 2-8-4 Loco in order to accommodate it within the confines of his Meccano Set, living room and car!

When Bert Love finally made it, having had trouble with his (non-Meccano) car, he interested all with sight and smell of his re-created SML 6a (Steam Derrick Crane – see MMQ 3) and also brought his own modernised version of same in shining yellow and silver.

Space precludes describing any more exhibits, but all who attended voted it the best meeting yet – in spite of the fact that it was the 13th in the series!

Phil Ashworth.

NORTH WESTERN MECCANO GUILD

The inaugral meeting of the North Western Meccano Guild was held at Hoddlesden Vicarage on Saturday, 22nd September, Present at the meeting were Mr. Sidney Whiteside of Clitheroe who was elected Chairman, Michael Walker from Hoddlesden who was appointed Secretary and four other members, namely, Bill Barker from Clitheroe, Martyn and Graham Brown and John Nuttall, all from Leyland.

The Guild owes its existance to the determination of the Chairman to provide club meetings at regular intervals, between those of the well-known Midlands Meccano Guild. As the M.M.G. meetings occur in April and September, it is proposed to hold our meetings in early January and July. It must be emphasised, however, that this arrangement is for the benefit of the members, in that a clash of dates with those of the M.M.G. meetings is impossible (most of us are also members of the Midlands Guild).

Although members were not obliged to bring any models to the inaugral meeting, a foretaste of the good things to come was provided by Bill Barker, who showed us a splendid reproduction of a Ransomes Miniature Caterpillar Tractor. Bill's only help in constructing the model was an illustration in an old catalogue. Among the model's attractions was a unique design of gearbox and sprung caterpillar tracks. The power for this very heavy model came from a single Motor-with-Gearbox. We also had the good fortune to see a new Multikit model and a superb scale model of a Formula 1 Racing Car.

As yet, the Guild has no official meeting place, although enquiries are being made to find one. In the meantime, we hope to pressure the long-suffering Mr. Whiteside into providing room at his house in Clitheroe for our January meeting.

At present, the membership consists of only six faithful Meccano fanatics, but we hope to improve on this figure in the future. Our thanks go to Mr. C. Jelley of Meccano Limited, and to members of the Midlands Meccano Guild who have supplied much valuable information and encouragement in the formation of our Guild.

M. J. Walker.

(Readers interested in joining the North Western Meccano Guild should contact Mr. Walker at 31 Carus Avenue, Hoddlesden, Darwen, Lancs.)

STEVENAGE MECCANO CLUB

Twenty-four members attended the second Henley Exhibition on 1st September, and between them displayed a total of 60 models. Outstanding among these were a Bolt Sorting Machine designed and built by Paul Blythe, a Traction Engine and Fairground Organ by Jack Farrington of Cross Keys, Monmouth, and several small, but beautifully-detailed aircraft models by Roger Le Rolland. An unfortunate road accident on the way to Henley damaged Roger's Eiffel Tower model which was to have been the centrepiece of the S.M.C. display. Special thanks to the other S.M.C. members for the effort they all put into making the display worthwhile. Several of the youngsters won Pocket Meccano Sets for their entries in the model-building competition.

A club display of working and static models raised £12.00 towards a swimming pool for the Stotfold School, Herts. Two members deserve a special mention: Peter Brown, for the outstanding effort that he put into a wonderful display board for the Multikit Sets, and Adrian Ogden, for an exciting model he designed and built which kept visitors entertained throughout the afternoon. The latter was a sort of Roland Emmett 'creation' entitled "God made the World go round" – all sorts of interesting motions operated simultaneously. After the display terminated, a warm letter of thanks was received from the school's Headmaster.

Another good display of working models was shown on 6th October. This display was set-up in a marquee and is memorable for the plague of tiny spiders which invaded both models and modellers – evidently, creatures of every shape and size cannot resist the fascination of Meccano!!

Six S.M.C. members made an enjoyable visit to the H.T.M.C. at Hildenborough on 17th November. Prizes in the model-building competition held there were won by Mark Wadeson and Adrian Ogden.

John Foord has set the Club a model competition entitled "Pocket Meccano Plus One" which invites modellers to construct a model of their own design with the contents of a Pocket Meccano Set, plus one extra Meccano part of their choice. Results will be announced in the next report.

New members are Peter Lapthorne (13), Reginald Butler (12), Jeremy Partridge (8). A member since 1971, but not previously mentioned is Steven Hodges (11). Additional adult modellers are always welcome – please contact the Secretary at 7, Buckthorn Avenue, Stevenage, Herts, or phone: Stevenage 53392.

John Foord.

SOCIETY OF ADVANCED MECCANO CONSTRUCTORS

Another Meccano Society has recently been formed with its headquarters in Birmingham. The Society caters for the adult Meccano enthusiast and holds meetings twice a year. It has its own magazine and its officers are as follows: President, Hubert Lansley ("Spanner" of M.M. 1923-30); Treasurer, R. W. Lloyd; Secretary, B. N. Love, 61 Southam Road, Hall Green, Birmingham 28.

Further details may be had from the Secretary on receipt of a stamped addressed envelope.

B. N. Love.

TRANSVAAL MECCANO GUILD

Another very successful meeting took place on Saturday, 27th October, with an attendance of twenty-three members, which is the largest attendance so far. Two new members were introduced to the guild, namely Mr. Frank Clement and Miss Laurianne Durand: Laurianne is our first lady member and I hope that this may be a pointer to the future when we may well have a women's guild!

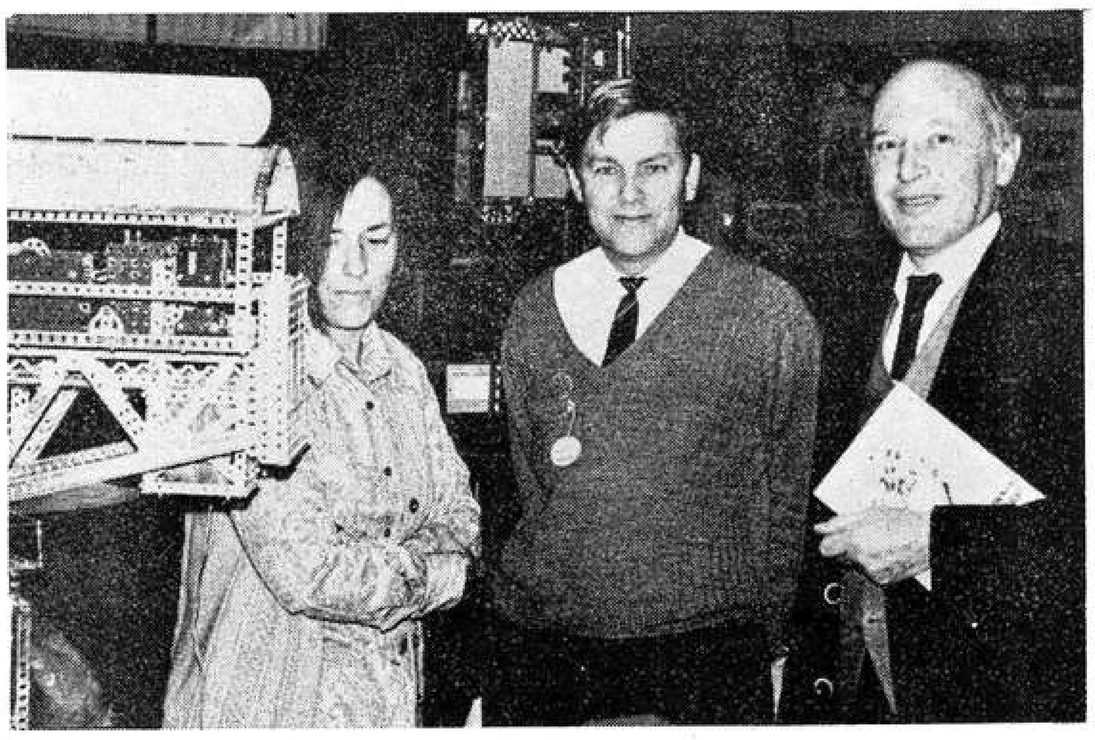
Talks on members' models took place, and I think that we must continue with this item because it gives beginners and the not-so-experienced model-builders a chance to learn how various problems are overcome, and the methods of construction employed. Graeme Davie was first to demonstrate his model which was the part-finished base of his giant Blocksetter. To give you some idea of its size, the base is approximately 12ft. square. Graeme described his method of constructing the base support framework built onto a 2ft. long girder to which are fitted 8 pairs of wheels (16 pairs in all) arranged in 4 sets and made-up from Wheel Flanges and Face Plates. There was a very nicely constructed roller bearing for the Blocksetter with Rack Strips round the perimeter, which will eventually be used for the slewing motion.

Other members who gave talks included Paul Hatty (Orrery), Bill Steele (base of Level Luffing Crane) and Hon. Sec. (Tramway). I will record these talks at future meetings, so that I can write a short report on each talk for the benefit of those members who cannot get to the meetings.

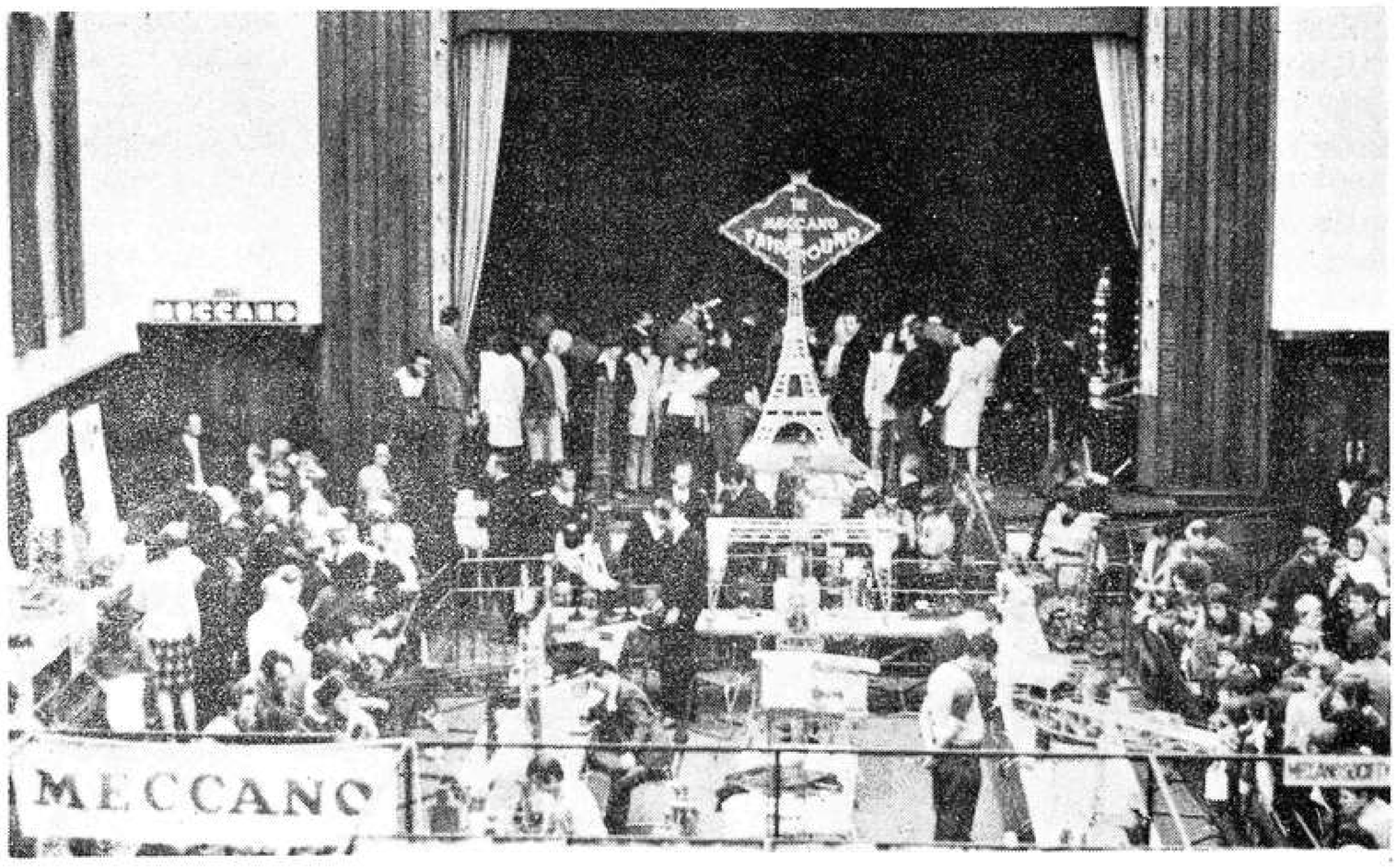
Membership now stands at 32.

Peter Matthews.

In the last issue of MMQ we featured a report on the activities of the Transvaal Meccano Guild and Cape Town M.C. at the Rand Hobbies Fair in Johannesburg, South Africa. At that time, however, we unfortunately did not have any illustrations to accompany the article, but we have since reeeived a number of photographs from the Transvaal Guild's Hon. Secretary, Mr. Peter Matthews, two of which we are pleased to reproduce here for your interest. The show must have been fantastic!



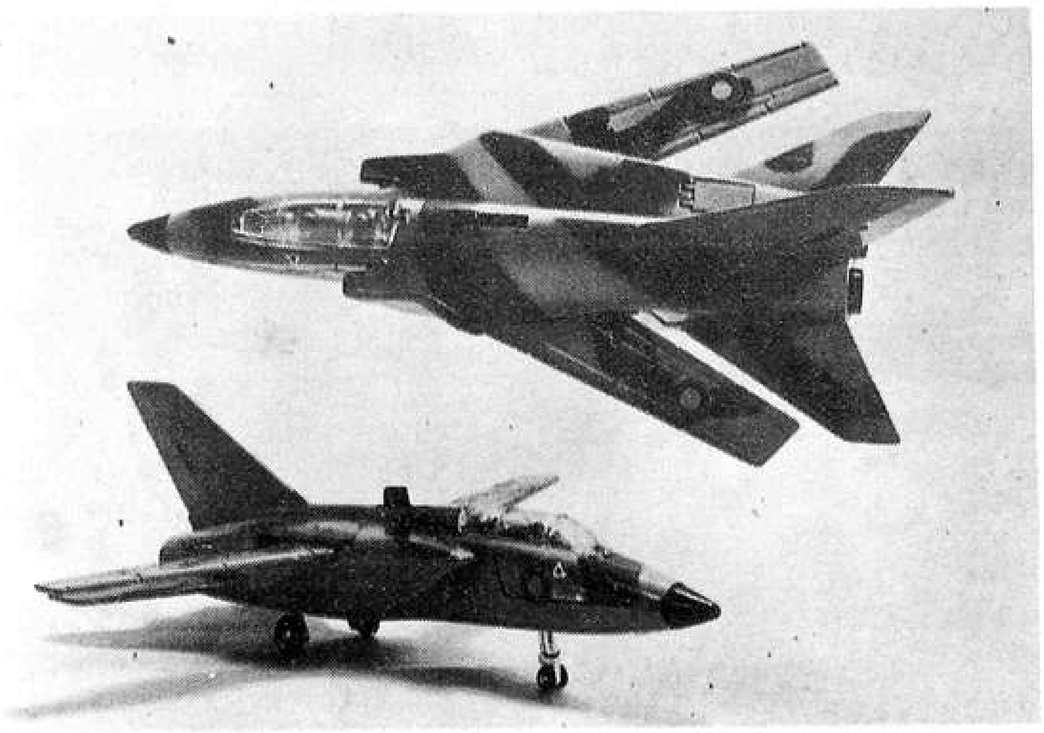
Right, Mrs. and Mr. Peter Matthews pictured during the Rand Hobbies Fair, Johannesburg, with Mr. Silberman of Regal Trading, Meccano's South African distributors. Below, a view from the balcony of the Meccano Exhibition at the Rand Hobbies Fair, showing part of the hall and "Fairground" on the stage.



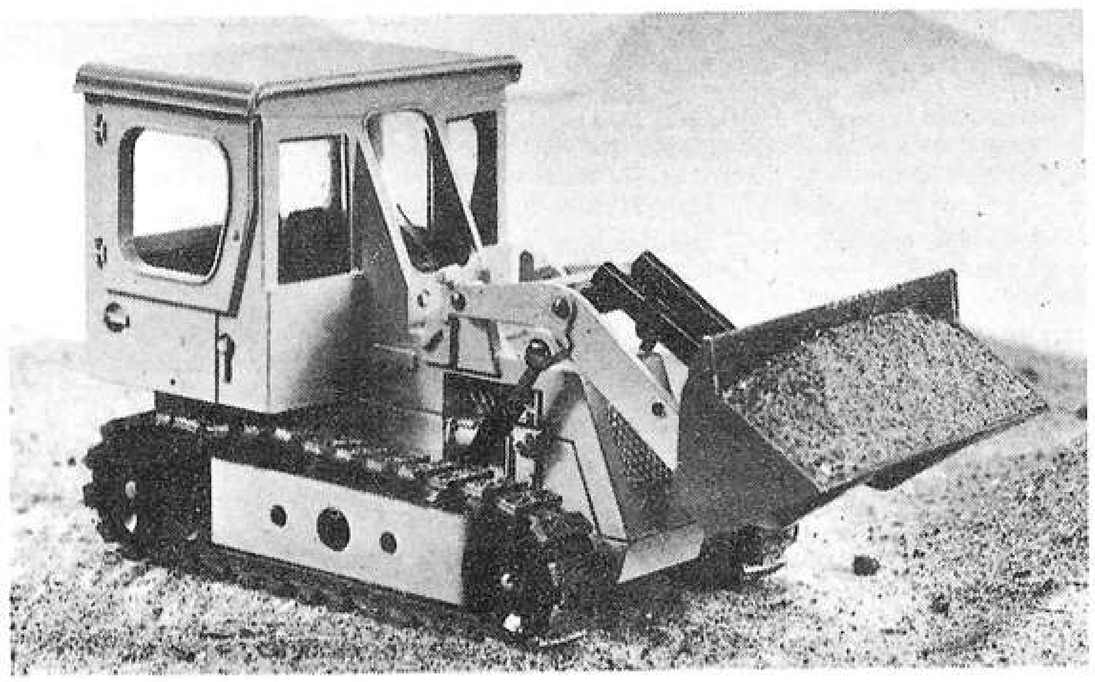
DINKY TOYS NEWS

A look at the new Dinky Toy models released since the last issue of "Meccano Magazine Quarterly".

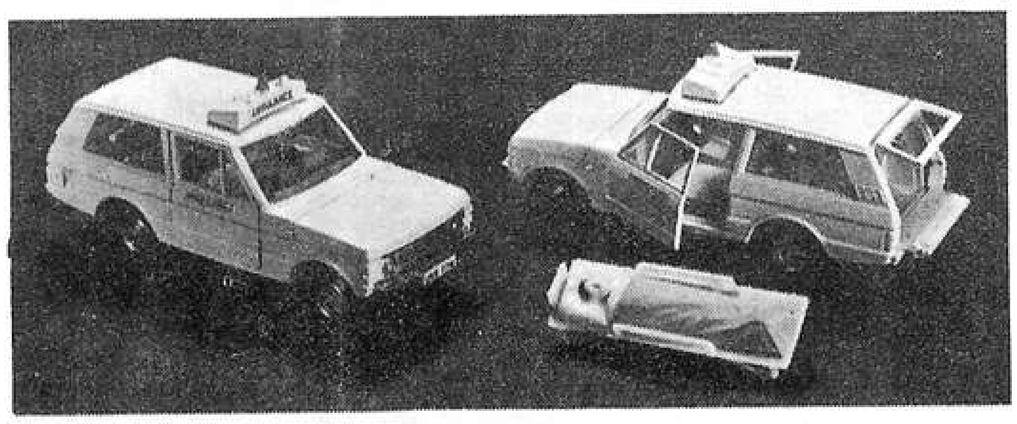
Above, No. 691 Striker Anti-Tank Vehicle, Features include a sturdy body casting which sports a wealth of intricate realistic detail, twin whip-type aerials and an exhaust representation. Action features include an elevating missile firing tray (fires 5 missiles singularly or in unison), a rotating cupola with machine gun representation and "working" caterpillar tracks. Overall finish is in matt olive drab with black firing levers, aerials, cupola and exhaust, grey tracks and an identification label on both sides.



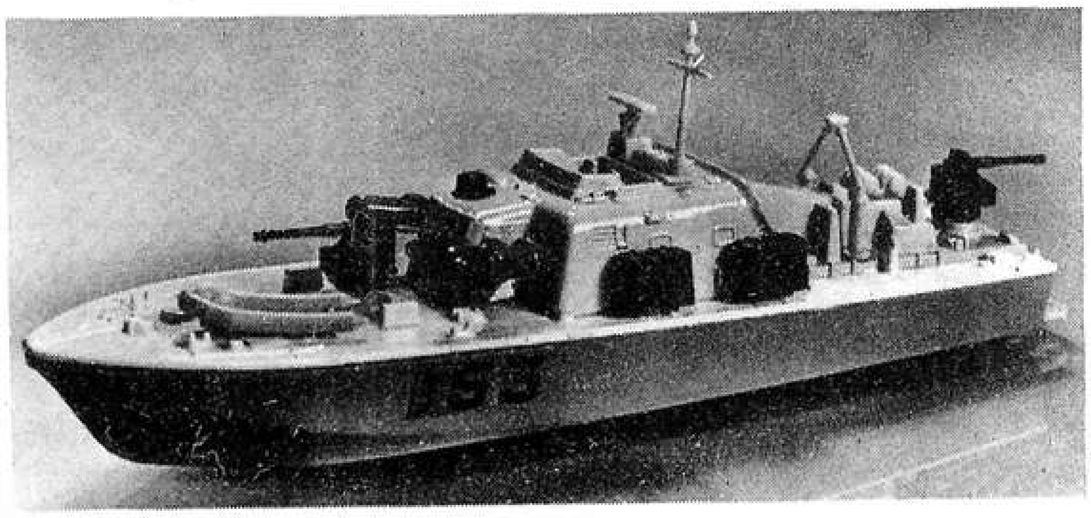
Above, No. 729 M.R.C.A. features a well-detailed casting, lever-operated swing-wings linked to a retractable tricycle undercarriage and a moulded cockpit canopy which houses pilot-figure representations. Overall length is 200mm with an open and closed wingspan of 164mm and 104mm respectively. Overall finish is in military camouflage colours, and it comes complete with a set of waterslide aircraft marking transfers for self-mounting. Below, No. 732 "Bell" Police Helicopter produced to 1/60th scale. Features include a free-spinning main rotor blade, a rotatable rear rotor, an engine representation, a detailed cockpit with pilot figure, a transparent bubble canopy and simulated life rafts. Finish is in white with orange topsides, tail and skis and a blue engine/cockpit unit. Rotors are black, and the model sports a "POLICE" label on either side of the lattice boom. Comes complete with "Police Accident" sign and two warning cones.



Above, No. 977 Shovel Dozer, has an overall length of approximately 151mm. Features include a lifting and tipping dump shovel which operates through simulated hydraulic rams, "working" caterpillar tracks and a fully glazed, upholstered cab. Overall finish is in yellow with orange cab roof and dump shovel exterior, black hydraulic rams, track wheels and cab interior and silver grilles and radiator.



Above, No. 268 Range Rover Ambulance produced to a scale of 1:42. Action features include an opening bonnet, opening doors, an opening two-part tailgate and a removable stretcher-and-patient unit. Other features include a roof console which sports representations of twin sirens and a blue warning light, a detailed engine reproduction, a purpose-designed interior moulding, jewelled headlights and Speedwheels. Overall finish is in white with blue-tinted windows and "AMBULANCE" labels on the side doors and roof console. Below, No. 675 Motor Patrol Boat produced to a scale of 1:180. Features include an intricately-detailed casting, realistic representations of a life raft, a radar scanner, a mast, davits and supplementary fuel tanks. Action features include swivelling guns, a twin-missile firing mechanism and Speedwheels. Overall finish is in grey with yellow decks, black guns and fuel tanks, and orange ancilliaries.



Above, a new era in die-cast modelling! Meccano is the first British die-cast manufacturer to produce a model to 1/25th scale – No. 2162 Ford Capri. This picture shows the new model alongside the "traditional" 1/42nd scale Capri and it is a giant by comparison. Packed with fine detail, it sports a wealth of action features ranging from opening doors, bonnet and boot, through fully-fitted out interior, engine, underbody and exhaust detail, right down to scale reproductions of the original's 'mag' wheels.

Past Masters

Cont. from Page 13

It will thus be appreciated that the winner of a race will not be the competitor who can turn the driving handle the fastest, but rather the competitor with the skill to discover and stay at the *optimum* speed, i.e., the speed immediately below that which would cause the governor to disengage the drive.

RACING CARS

Turning to the three racing cars themselves, each of these is similarly built up from two 4½" Angle Girders 29, connected together at one end by a Channel Bearing 30 and, at the other end, by a Trunnion 31. A second Trunnion 32 is bolted between the Girders through their fourth holes from the rear. The apex holes of the Trunnions are connected by a 2½" x ½" Double Angle Strip 33, the inner securing 3/8" Bolt also holding a ½" Pulley without boss 34 in place to represent the steering wheel. Bolted to the centre of the Double Angle Strip is a Double Bracket 35, the lugs of which are bent outwards slightly and to each of these lugs a 2½" Flat Girder 36 is bolted to serve as a bonnet side. The Wheels are simply 1" Pulleys fixed on 3" Rods, journalled in Girders 29. Note incidentally, that the upper flange of Channel Bearing 30 is angled downwards to improve streamlining.

All that now remains to be added are the winding cords which "drive" the cars. In each case, a length of cord tied to the back of the car, taken over one ½" Pulley 5 down and around the Pulley on the Rod journalled in Girders 3 and 13, and then up and over the other Pulley 5. From there, it is taken the length of the track and around single Pulley 6, to be brought back and finally tied to the front of the car. The cord must be taut, without being so tight that it prevents the Pulleys from turning freely.

The model is now ready for operation, but, for those people with sufficient parts at their disposal, it is a good idea to encase the driving mechanism framework with suitable Plates. This prevents the governors from being seen and thus, besides adding an air of mystery to the operation of the model (what makes the drive cut out?), it prevents the operators from watching the governors to make sure that they keep Pinion 20 in mesh with the Contrate Wheel. It makes things that much more difficult and therefore, that much more enjoyable for them. The tracks, of course, can be made to any length, depending on the parts available.

The Parts Required list for the Race Game appears on page 7.

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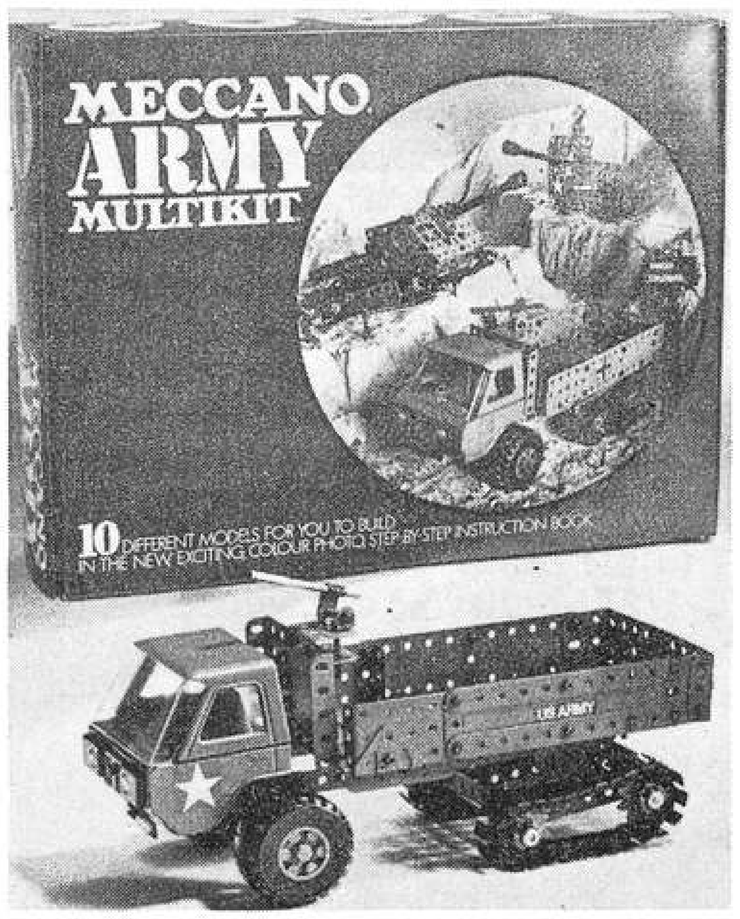
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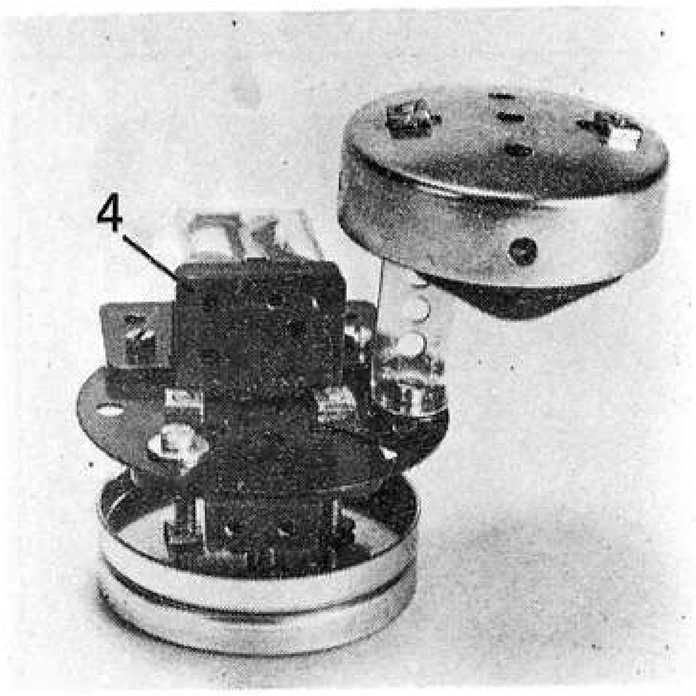
AMONG THE MODEL BUILDERS

with "Spanner"



ELECTRONIC FLASHER UNIT

In the last issue of MMQ we featured a Clock Self-winding Unit which had been built for us by Italian Meccano expert Giuseppe Servetti during a visit he paid to Binns Road last year. While he was here, Giuseppe also "knocked-up" the very interesting Meccano Flasher Unit illustrated in the accompanying photographs.

Although Flasher mechanisms have been produced in Meccano before, this unit is unique in that, to the best of my knowledge, it is the first electronic example ever produced – and this thanks to the components in the Electronic Control Set. The unit also includes a bell, controlled by the flasher, which can be coupled into the circuit if required.

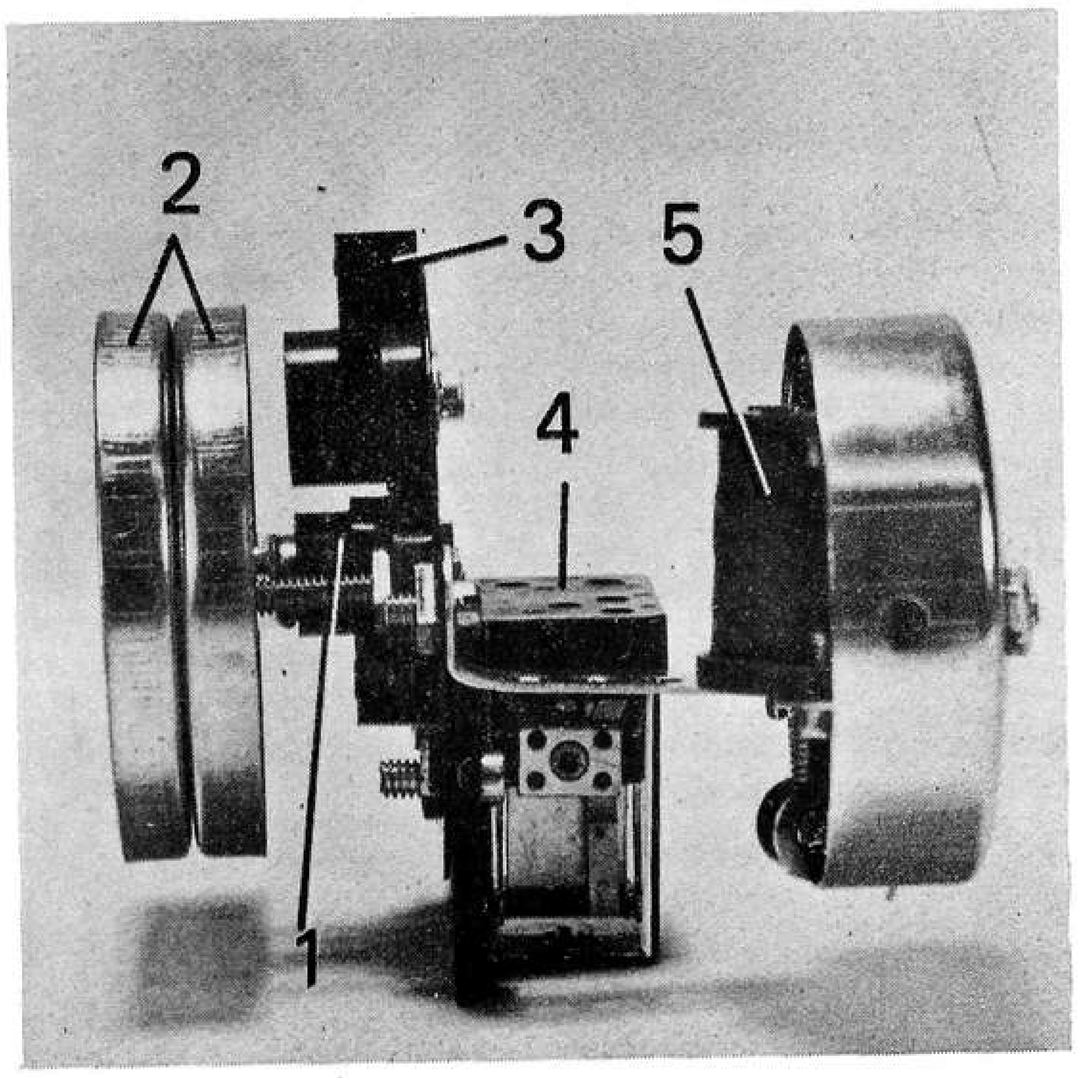
The unit, as illustrated, is built up on a Face Plate without boss (109a) as supplied in the Meccano Clock Kits, but a Flat Plate should do equally well. Fixed to the centre of the Face Plate by 1-1/8" Bolts is a Lamp Holder 1 (Electronic Part No. 610), carrying a Lamp. The bulb of the Lamp projects approximately half-way through the centre of two Wheel Flanges 2 secured back-to-back and held by Nuts on the protruding shanks of the 1-1/8" Bolts. A Photo Cell 3 (Electronic Part No. 602) is also bolted to the Face Plate in such a position that the element of the Photo Cell lies fully beneath the Wheel Flanges. Note that the Photo Cell is secured by one lug only and that the securing Bolt passes through one of the elongated holes in the Face Plate to allow the Cell to be secured as far inwards as possible under the Wheel Flanges.

Bolted to the back of the Face Plate is a Relay 4 (Electronic Part No. 606), as also is a 1½" x ½" bracket, supplied by a 2" Strip bent to shape. (Readers not wishing to bend a Strip could use a 1½" Strip attached by an Angle Bracket). Fixed by the same Bolt to the outer end of the bracket are an Angle Bracket and a Cylindrical Coil 5, a second Angle Bracket being secured to the other lug of the Cylindrical Coil. Held by Nuts in the spare lugs of these two Angle Brackets are ½" Bolts, on the shanks of which a Boiler End is held by further Nuts to serve as the bell. The bell striker is simply a Collar on the end of a 1-1/8" Bolt screwed right through an Electrical Insulating Spacer which slides in the centre of the Cylindrical Coil.

This completes the actual construction of the Flasher Unit, but care should be taken with the wiring. One power source terminal is connected to one terminal of the Photo Cell, this same Photo Cell terminal also being connected to one terminal of the Lamp Holder. The same Lamp Holder terminal is, in turn, also connected to the E terminal of the Coil. The second Photo Cell terminal is connected to socket 2 in the Relay, while the second Lamp Holder terminal is connected to Relay socket 3. The S terminal of the Coil is connected to Relay socket 4. Relay Sockets 1 and 5 are coupled together and, finally, the remaining power source terminal is also connected to Relay Socket 5.

Using this circuitry, the Relay will switch off power when light falls on the Photo Cell. Thus, when power is fed to the Unit, the Lamp lights up; the light falls on the Photo Cell and switches the power off. As soon as this happens, of course, the Lamp goes out and so the Relay, with no light on the Photo Cell, clears the circuit and the light is switched on again, when the whole cycle is repeated. As a result, the light flashes rapidly on and off. The frequency of the flashes can be varied to a certain extent by adjusting the position of Wheel Flanges 2 on their supporting 1-1/8" Bolts to bring them closer to, or further from, the Photo Cell.

As regards the bell, the constant on-off switching of the light circuit also similarly affects the solenoid supplied by the Coil and its "bell hammer" core. Thus – provided the Unit is mounted with the hammer downwards – the hammer will be



Above and left: two views of an Electronic Flasher Unit designed and built specially for the MMQ by Mr. Giuseppe Servetti of Piacenza, Italy. This fascinating mechanism also incorporates a simple bell which will ring when the unit flashes, but it can of course be omitted if not required.

drawn in to the solenoid when the circuit is "on", to then drop out and strike the bell when the circuit switches "off".

If the bell is not required, the circuit can be disengaged by simply withdrawing the Plug from socket 4 in the Relay.

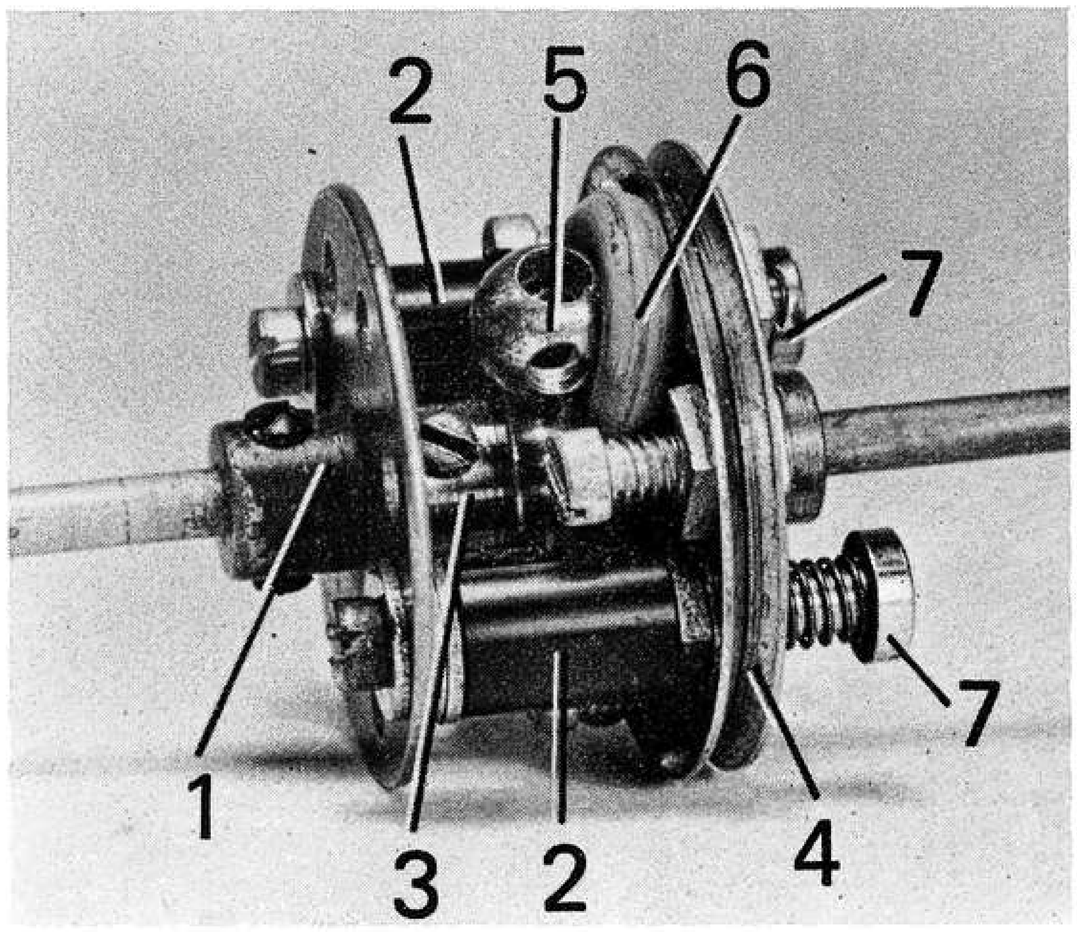
PARTS REQUIRED

1- 6	1-109a	1-162a	1-606
2-12	2-111a	1-527	1-608
16-37a	3-111c	1-564	1-610
5-37b	3-111d	1-602	11-612
1-59	2-137	Connecting wire	

CLUTCH MECHANISM

Our second offering for this issue is a compact, but effective Clutch Mechanism suitable for use, amongst other things, in small-to-medium motor vehicles. It was designed by Mr. S. J. Sawaryn of Old Marston, Oxford and, in fact, it is Mr. Sawaryn's original mechanism which appears in the accompanying photograph.

Fixed on the inner end of a 1" Rod (in operation, the length of this Rod would depend on the parent model) is an 8-hole Bush Wheel 1, the Rod being carried only part-way in the boss of the Bush Wheel, Fixed through diametrically opposite holes in the face of the Bush Wheel are two electrical Insulating Spacers 2, a Washer being carried beneath the head of each fixing Bolt and two further Washers being positioned between the Bush Wheel and each Spacer. Inserted, free, in the remaining bore of the Bush Wheel is a 3" Rod on which a ½" Pulley 3 is secured, the boss of the Pulley making contact with the Bush Wheel.



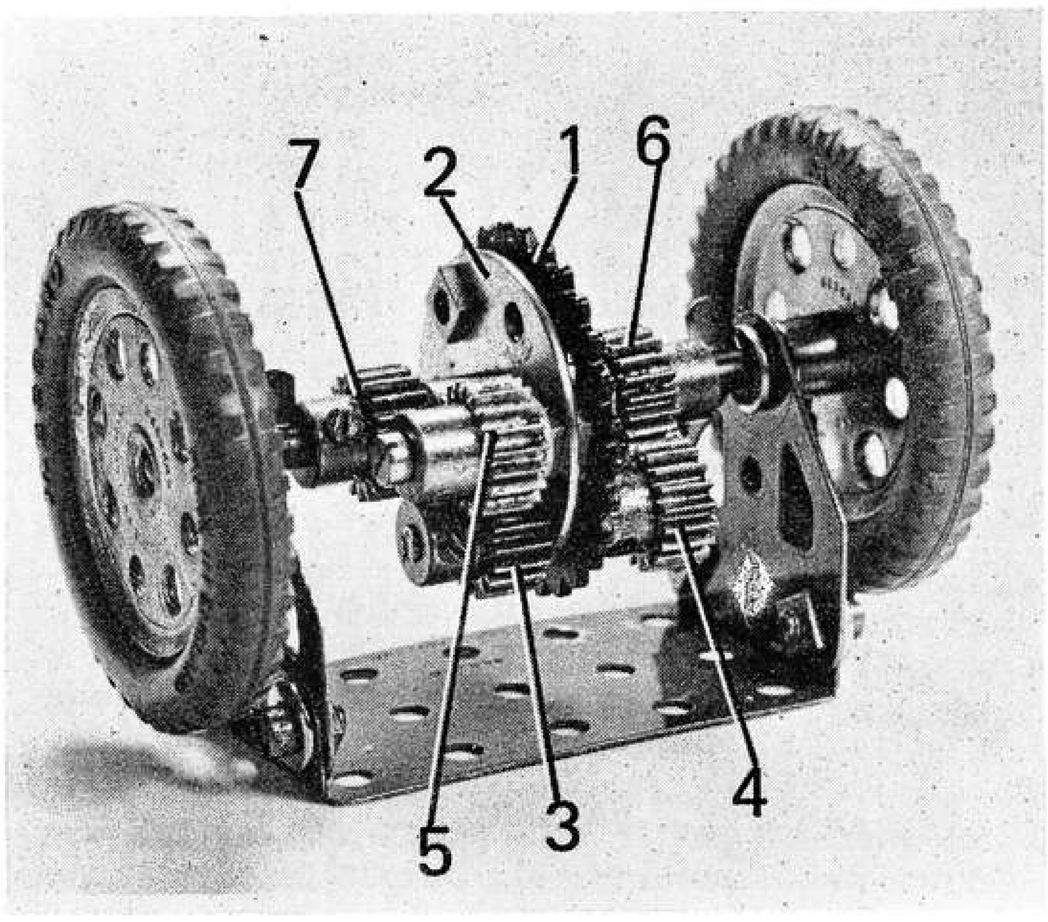
A small Clutch mechanism designed by Mr. S. J. Sawaryn of Old Marston, Oxford and suitable for use in light-to-medium vehicles. It makes particularly good mechanical use of two Insulating Spacers from the Meccano electrical (4EL) outfit. A small, but adequate friction surface is provided by a Rubber Ring, carefully shaped.

Sliding on the 3" Rod is a 1½" Pulley 4, in diametrically opposite holes in the face of which two Handrail Supports 5 are fixed. Each of these Handrail Supports is spaced from the Pulley by one Washer on its shank. Four 3/8" Bolts, heads protruding, are held by Nuts in the remaining four holes in the face of the Pulley, then a Rubber Ring 6 is stretched over the heads of the Handrail Supports, but inside the shanks of the protruding 3/8" Bolts, as shown. When the Pulley is moved towards the Bush Wheel, the centre section of the Rubber Ring should make firm contact with the face of Pulley 3. The two are held against each other by the action of Compression Springs on two Pivot Bolts 7, passed through opposite holes in the face of Pulley 4, fitted with a Washer and locked by a Nut in the outer ends of Insulating Spaces 2.

Pulley 4, with the Rubber Ring, acts as the clutch plate, of course, and, under operating conditions, a method must be supplied by which it can be engaged and disengaged. Mr. Sawaryn suggests the use of two Pawls positioned on a suitable mounting with the inner curved edges of the Pawls engaging in the groove of Pulley 4. "The internal radius of the Pawl is about right to fit into the groove of the Pulley," says Mr. Sawaryn. "One Pawl either side is adequate".

PARTS REQUIRED.
(excluding Axle Rods)

1-21	6-37a	4-111c	2-147b
1-23a	2-37b	2-120b	1-155
1-24	18-38	2-136	2-564

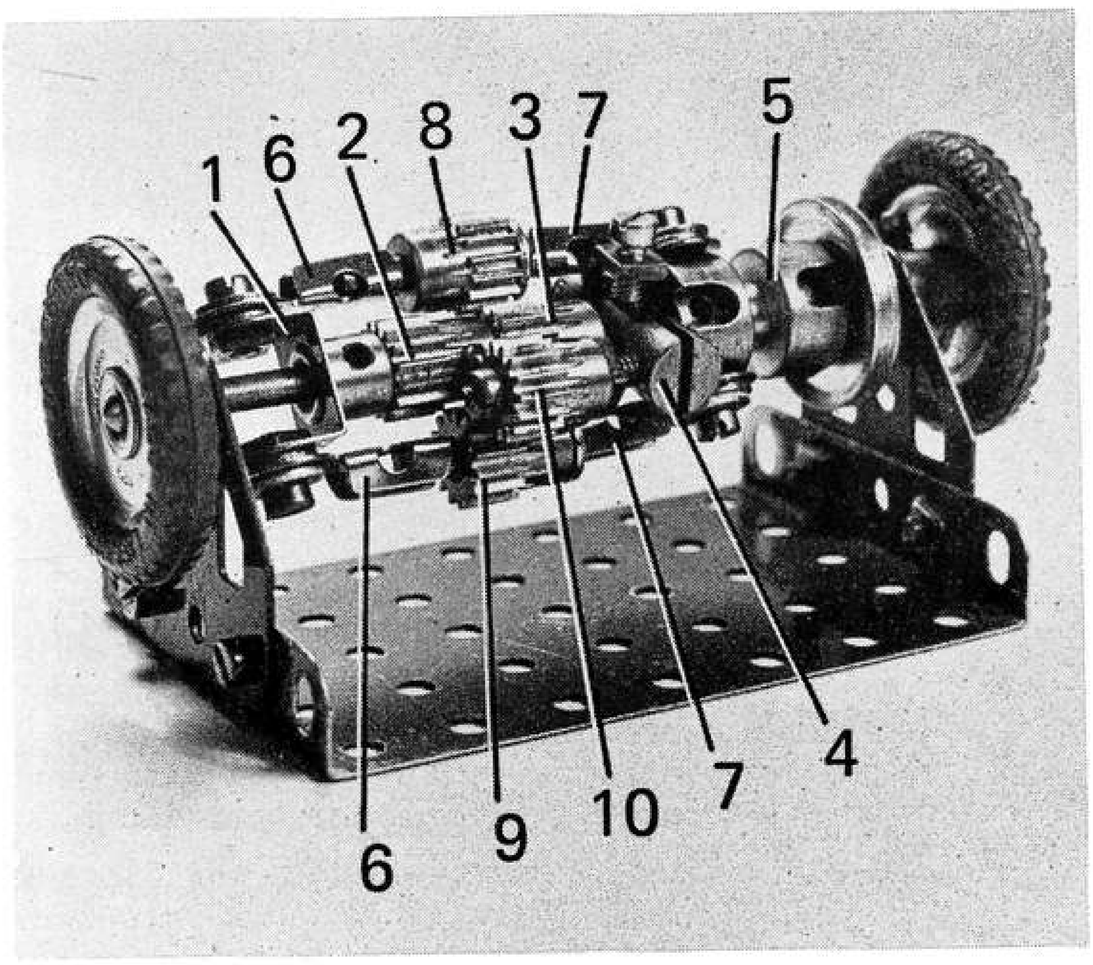


A Spur Differential designed by Mr. James Grady of Dundee, Scotland. He produced it specially to ensure that the drive-receiving point was centrally-positioned in the axle; in most Meccano-built differentials, the drive is necessarily off-centre – a situation which has caused Mr. Grady a certain amount of annoyance!

SPUR DIFFERENTIALS

Still on the subject of mechanisms for motor chassis, I have received no less than three differential mechanisms from that champion of the small-scale vehicle builder, Mr. James Grady of Dundee, Scotland, whose work has been featured several times in past editions of the "old" Meccano Magazine. All three mechanisms are somewhat unusual in that they are spur differentials making use of pinions revolving in the same plane instead of the more usual type of differential where the component gears mesh at right-angles to each other.

Dealing first with the unit shown here fitted with 1½" Pulleys and Motor Tyres, Mr. Grady explained when submitting this mechanism; "In building Meccano motor chassis it always annoyed me to find that, if



An extremely slim Spur Differential also produced by Mr. James Grady of Dundee. It was specially designed for use in models using 1" Pulleys with Tyres as road wheels and is a good example of why Mr. Grady has earned the nickname "Champion of the small-scale vehicle builders!"

I fitted the drive exactly in the centre of the back axle, the differential was always out of line, In actual car design, the makers fit the differential inside the centre crown driving wheel, but, as this is not possible in Meccano, I have split the differential as can be seen." The result is a centralised driving point.

As regards construction, a 1½" Sprocket Wheel 1 and a 6-hole Bush Wheel 2 are fixed together at one point only by a Bolt passed through holes in their faces, an extra Nut on the Bolt separating the Sprocket from the Bush Wheel. Journalled in diametrically opposite holes in the Sprocket and Bush Wheel is a 1" Rod held in place at the Bush Wheel side by a ½" Pinion 3, boss outwards, and held in place at the Sprocket side by a second ½" Pinion 4, boss inwards. The latter Pinion is spaced from the Sprocket by a Washer. An ordinary Bolt is next fitted with two Washers then passed through the adjacent hole in the Sprocket and screwed into a Nut positioned between the Sprocket and the Bush Wheel. This compensates for the Nut on the fixing Bolt mentioned above, but note that the Bolt in this case does not project through the Nut as there is no coinciding hole in the face of the Bush Wheel at this point.

In mesh with Pinion 3 is a third ½" Pinion 5, this carried loose on a ¾" Bolt held by Nuts in the face of the Bush Wheel. A Washer spaces the Pinion from the first Nut, In mesh with Pinion 4 is another ½" Pinion 6 on a 1½" Rod journalled free in the boss of Sprocket Wheel 1. Another 1½" Rod is journalled free in the boss of Bush Wheel 2 and on this is fixed yet another ½" Pinion 7 which meshes with Pinion 5. The Pinions on the 1½" Rods are fitted boss outward. The 1½" Rods, themselves, serve as the parent vehicle half-shafts and are, of course, carried in suitable bearings depending on the parent model. For demonstration purposes Mr. Grady built up a simple mount from two Flat Trunnions bolted to the flanges of a 2½" x 1½" Flanged Plate, the 1½" Rods being journalled in the apex holes of the Flat Trunnions. Each Rod is prevented from sliding in the boss of the Sprocket Wheel or Bush Wheel by a Spring Clip and Washer carried between the relevant ½" Pinion 6 or 7 and the nearby Flat Trunnion. In operation, chain drive is taken to Sprocket Wheel 1.

The only sight criticism which could be levelled at this mechanism was itself brought to our attention by Mr. Grady – namely that the three Pinions carried on the Sprocket Wheel, because they are all in the same sector, create something of a balance problem. However, this problem can be overcome by fitting suitable opposing counterweights.

PARTS REQUIRED
(as illustrated)

2-18a	5-26	6-37b	1-95a
1-18b	2-35	10-38	1-111
2-21	9-37a	1-51	2-126a
1-24			2-142d

Mr. Grady's second differential is an extremely slim mechanism suitable even for models using 1" Pulleys with Motor Tyres for road wheels! (He had to sacrifice centre-drive, however!). In this case, a demonstration mount was supplied by two Flat Trunnions bolted to the flanges of a 3½" x 2½" Flanged Plate. Journalled in the apex hole of one of the Trunnions is a 2" Rod carrying a Large Fork Piece 1, loose, and fixed 7/16" Pinion 2. The inner end of the Rod is then positioned, free, part-way into the bore of a second 7/16" Pinion 3 which is fixed on a 2½" Rod journalled in the other Flat Trunnion. Mounted free on this Rod are a Slotted Coupling 4 and a Collar on which a Socket Coupling 5 is fixed, the Rod passing through the centre transverse bore of the Slotted Coupling as shown. A 1" Pulley with boss is held in the outer end of the Socket Coupling.

Now bolted to the lugs of Large Fork Piece 1 are two Rod and Strip Connectors 6, each Connector being spaced from its respective lug by a Washer. Two more Rod and Strip Connectors 7 are fixed to the outside of the inner end of Socket Coupling 5, Washers being packed under the heads of the securing Bolts as necessary. The rod sections of Connectors 7 face the rod sections of Connectors 6 and each pair thus supply supports for a 1" Rod on which a 7/16" Pinion and a Washer are mounted, free. In one case, the Pinion (8) meshes with Pinion 3, while in the other case, the Pinion (9) meshes with a further 7/16" Pinion 10 on a 1-1/8" Bolt locked in Slotted Coupling 4. The last Pinion also meshes with Pinion 3.

It will be noticed that a 3/8" Bolt 11, fitted with a Nut, is screwed into one transverse tapped bore of Slotted Coupling 4. This is simply an "anchor" for nearby Rod and Strip Connector 7, the Nut being so positioned that it locates against the Rod and Strip Connector to prevent it from turning. Drive is of course taken to the 1" Pulley held in Socket Coupling 5.

PARTS REQUIRED
(as illustrated)

1-16a	9-37a	1- 59	1-116a
1-17	8-37b	1- 63b	1-126a
2-18b	10-38	1-111c	2-142c
3-22	1-53	1-111d	1-171
5-26c			4-212

NARROWEST POSSIBLE

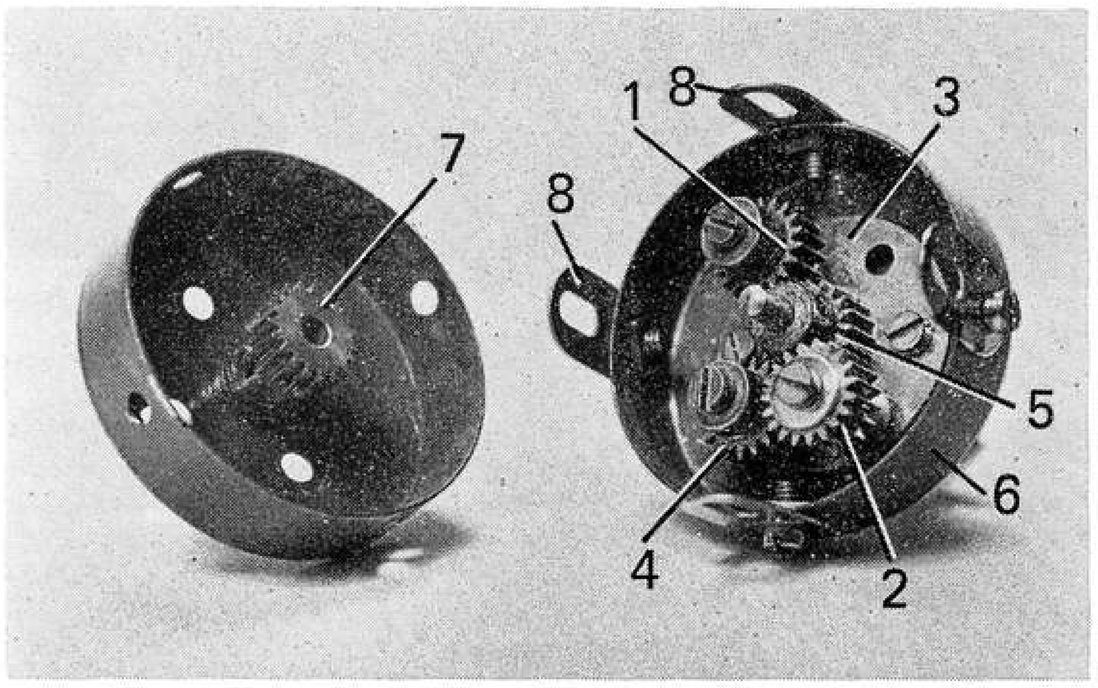
Mr. Grady's third – and our final – offering is a very smoothly-operating differential which he claims is the narrowest possible differential it is possible to achieve in Meccano. Having seen it, I believe him!

The accompanying illustration of course, shows the unit split open for photographic purposes. At the start

of construction two ½" Pinions 1 and 2 are mounted, free, on two ¾" Bolts held by Nuts in diametrically opposite holes in a 6-hole Wheel Disc 3. Note that Pinion 1 is positioned boss outwards, with the face of the Pinion being spaced from the nearby Nut by a Washer, while Pinion 2 is positioned boss inwards, with the face of the Pinion being spaced from the head of the Bolt by a Washer. A third free-running ½" Pinion 4 is mounted, boss outwards, on a ¾" Bolt held by Nuts in the Wheel Disc with its face spaced from the Nut by a Washer. This Pinion meshes with Pinion 2. A 2½" Rod, serving as a half-shaft, is then passed through the centre hole of the Wheel Disc and fitted with a fixed ½" Pinion 5, boss outwards, this Pinion meshing with both Pinions 1 and 4.

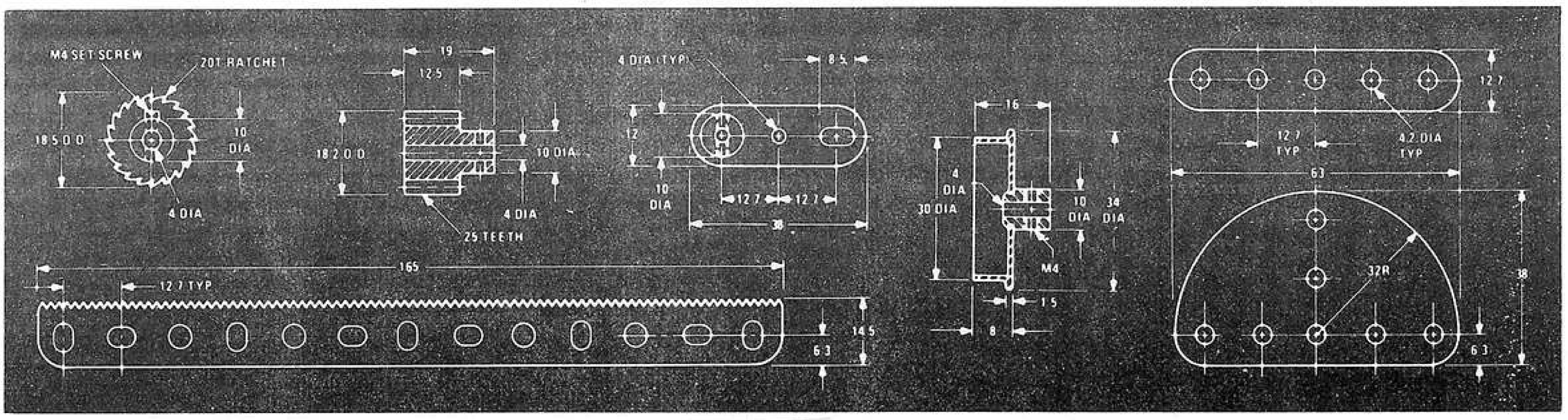
Two 3/8" or ½" Bolts are next passed through two diametrically opposite holes in the Wheel Disc, are fitted with one Nut each, and are then passed through two elongated holes in a Boiler End 6. The half-shaft Rod, of course, fits through the centre hole in the Boiler End. A Washer is slipped onto the Rod, followed by a 1½" Sprocket Wheel 7, the latter being secured by Nuts on the protruding shanks of the 3/8" or ½" Bolts. Note that the Rod is not fixed in the boss of the Sprocket Wheel, but a Spring Clip is added to the Rod to prevent it sliding in the boss. The inner end of the Rod is inserted, free, part-way into the bore of yet another ½" Pinion 8, this one fixed on the inner end of a 1½" Rod which serves as the other half-shaft. Pinion 8 meshes with Pinion 2. Four spacing Washers are added to the second Rod, followed by a second Boiler End which is secured to the first Boiler End by four Fishplates 9. This last operation – fixing the Boiler Ends together – sounds easy, but it can be difficult if the correct procedure is not followed. Using Mr. Grady's method, the securing Fishplates are first bolted through their round holes to Boiler End 6, then four Nuts are positioned inside the second Boiler End to coincide with the appropriate fixing holes, where they are held in place by small strips of stickly tape. When this has been done, the Boiler End is mounted in position with the holes coinciding with the elongated holes in the Fishplates and Bolts are screwed in to finally complete the mechanism.

A final offering from Mr. Grady is this third Spur Differential which we believe is the narrowest differential it is possible to build with Meccano. Securing the two halves of the casing together can be awkward unless the method used by Mr. Grady is folowed, namely fixing the holding nuts in place with sticky tape inside one half of the casing.



PARTS REQUIRED
(as illustrated)

4-10	5-26	8- 38	2-162a
1-16a	1-35	1- 95a	
1-18a	15-37a	3-111	
1-24c	8-37b	2-111c (or 111a)	



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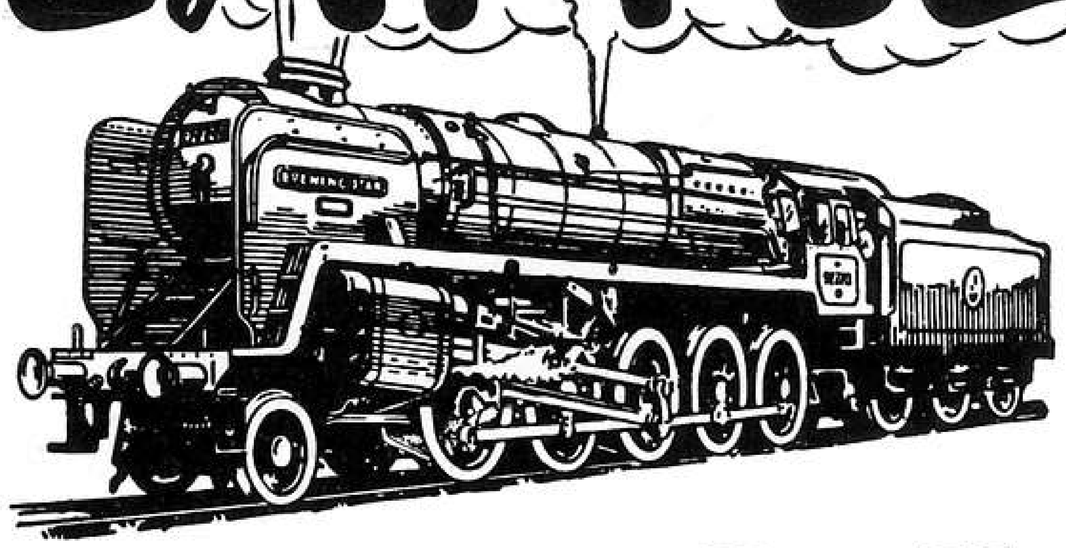

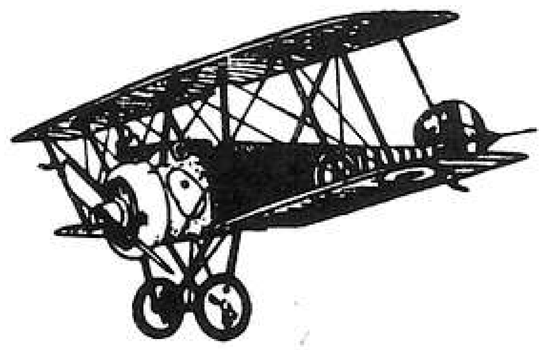

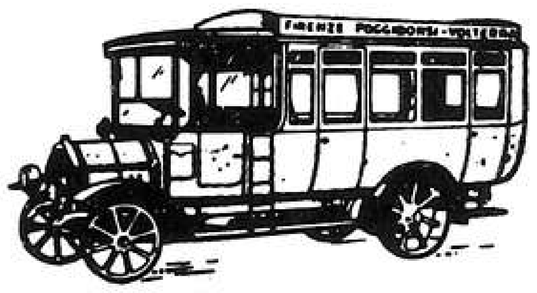

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Editorial *continued.*

Having the Sterling conversion carried out at this end can result in considerable delay for the subscriber, as well as increasing the danger of the subscription going astray. It also involves us in bank charges for which we are not budgeted!

INFLATION

This last point, in fact, brings me to some less happy news. It is with sincere regret I must report that, starting with the next issue (April), the price of the MMQ is increasing from 20p to 22½p and the annual subscription from 80p to 90p (new overseas airmail rates appear on the Renewal Form).

We hate having to increase the price, but we have had no alternative. As you know, the MMQ is produced on a break-even basis and – frankly – it isn't breaking-even now! The original 80p subscription was calculated on costs existing at the beginning of 1973, but, during the year, these costs rose considerably with the result that we are currently making a small loss. To counteract this loss, we are forced to raise the subscription rate to a point where we estimate we will again break-even. Sorry, but even your magazine has been unable to escape the continuing world-wide inflation effecting everything these days!

To finish on a happier note, though, you have given us wonderful support during the past year. I am confident that, with your continuing support, the MMQ will be here to serve the interests of Meccano modellers for very many years to come.

The Editor

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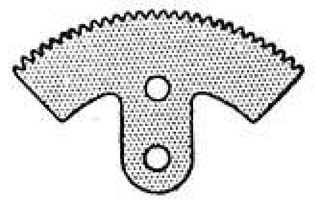

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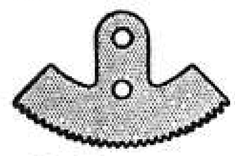

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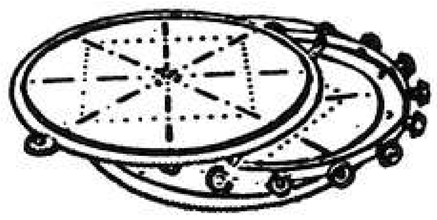

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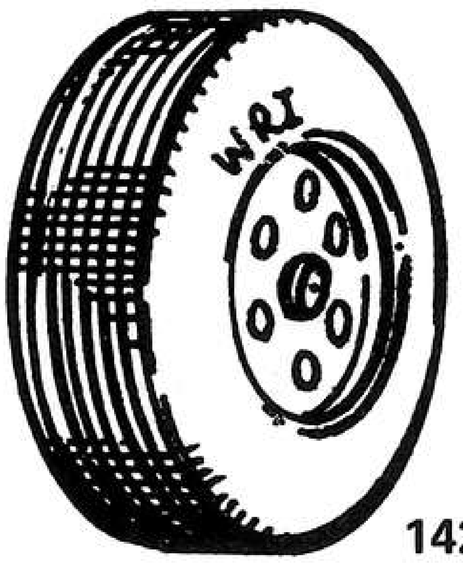

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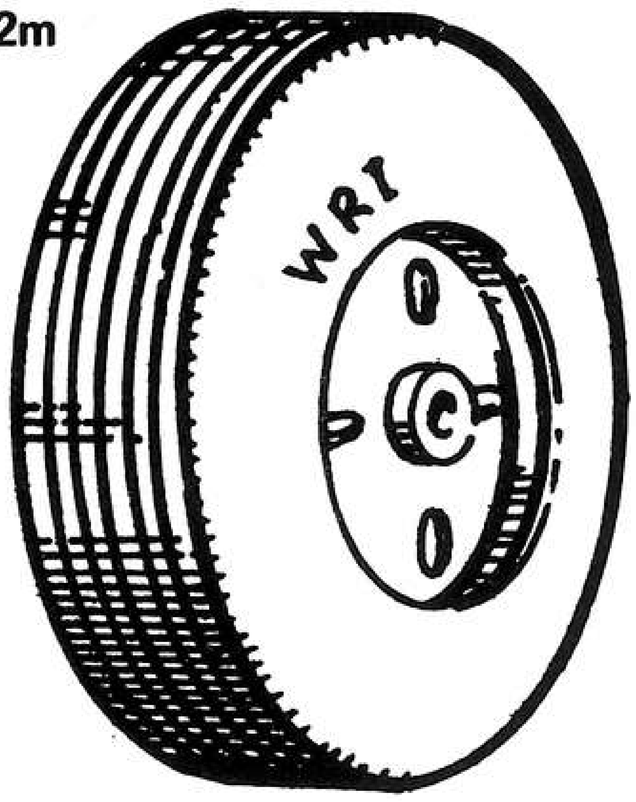

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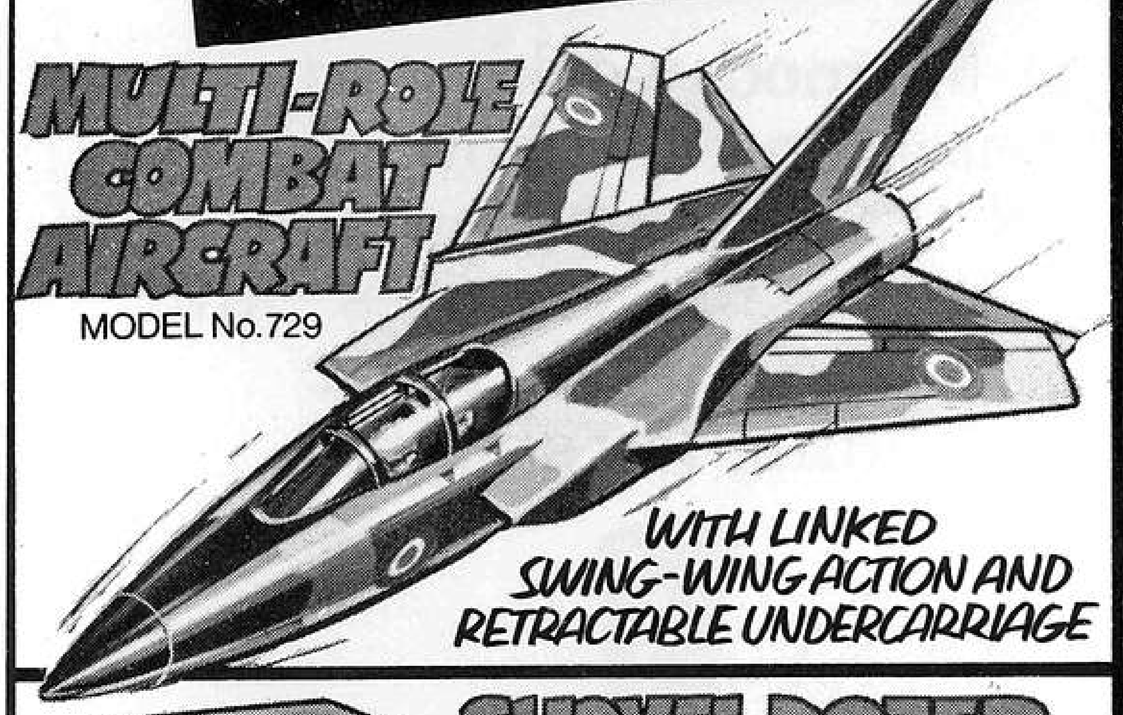

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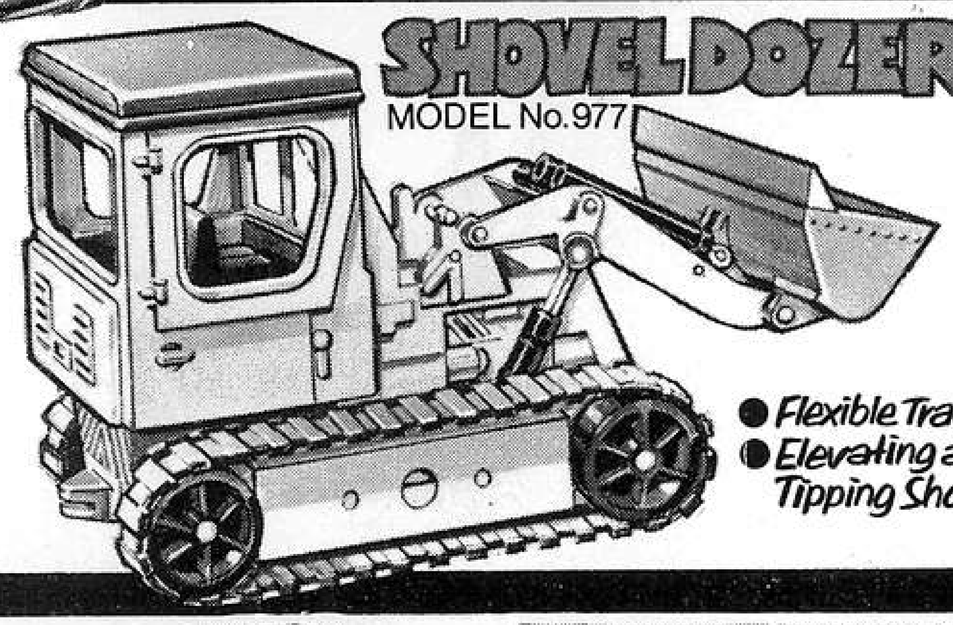

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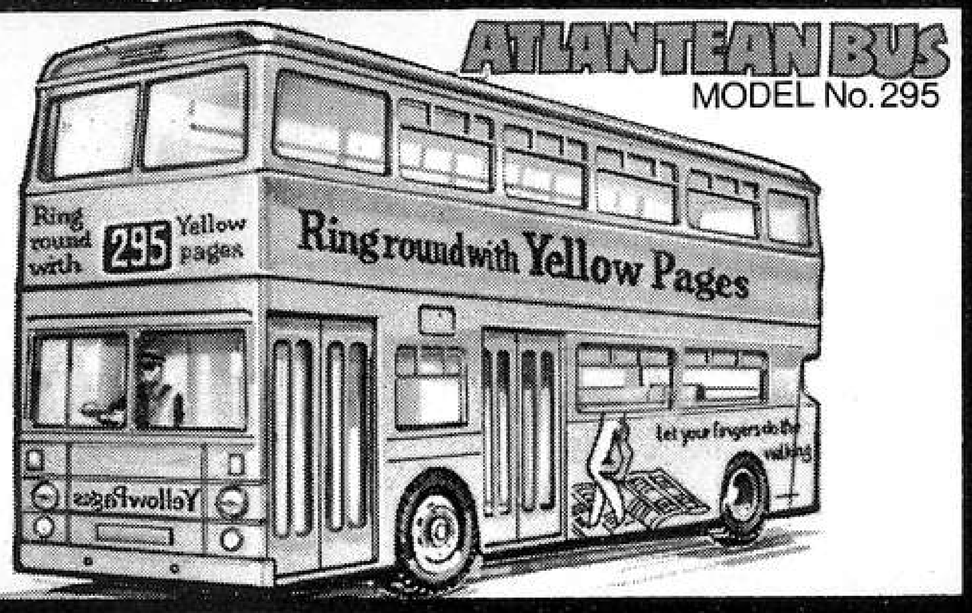

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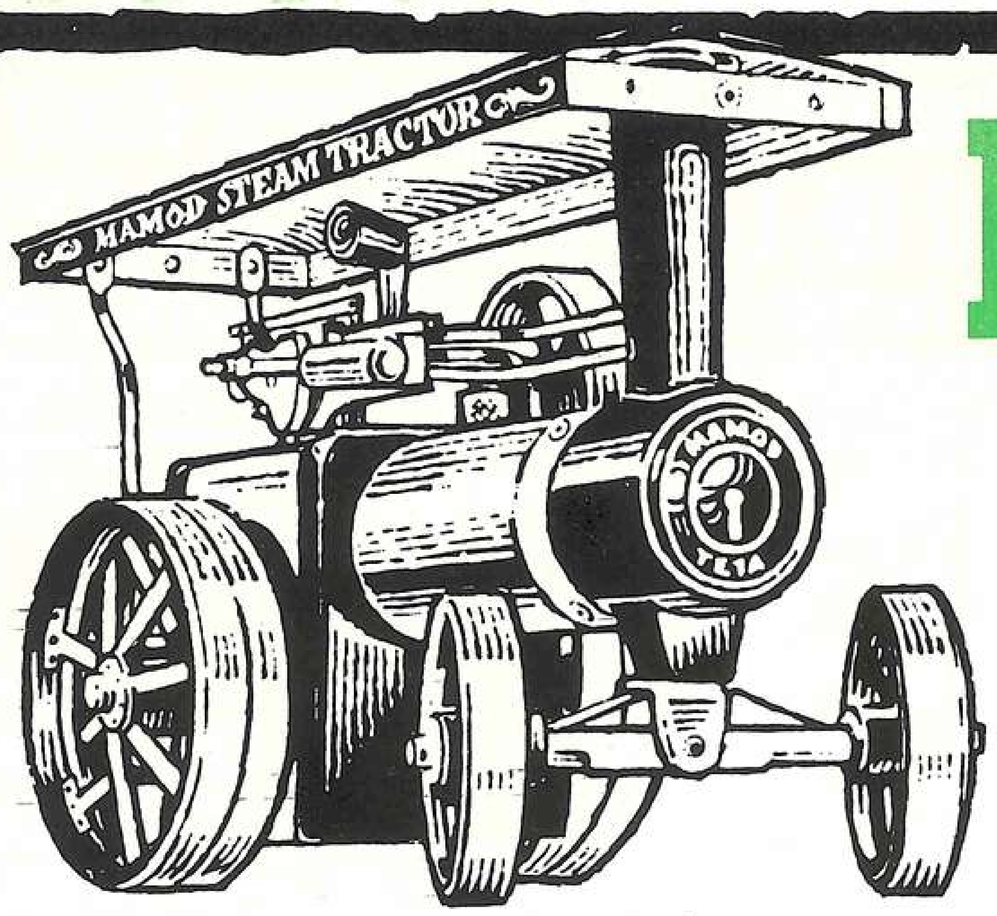

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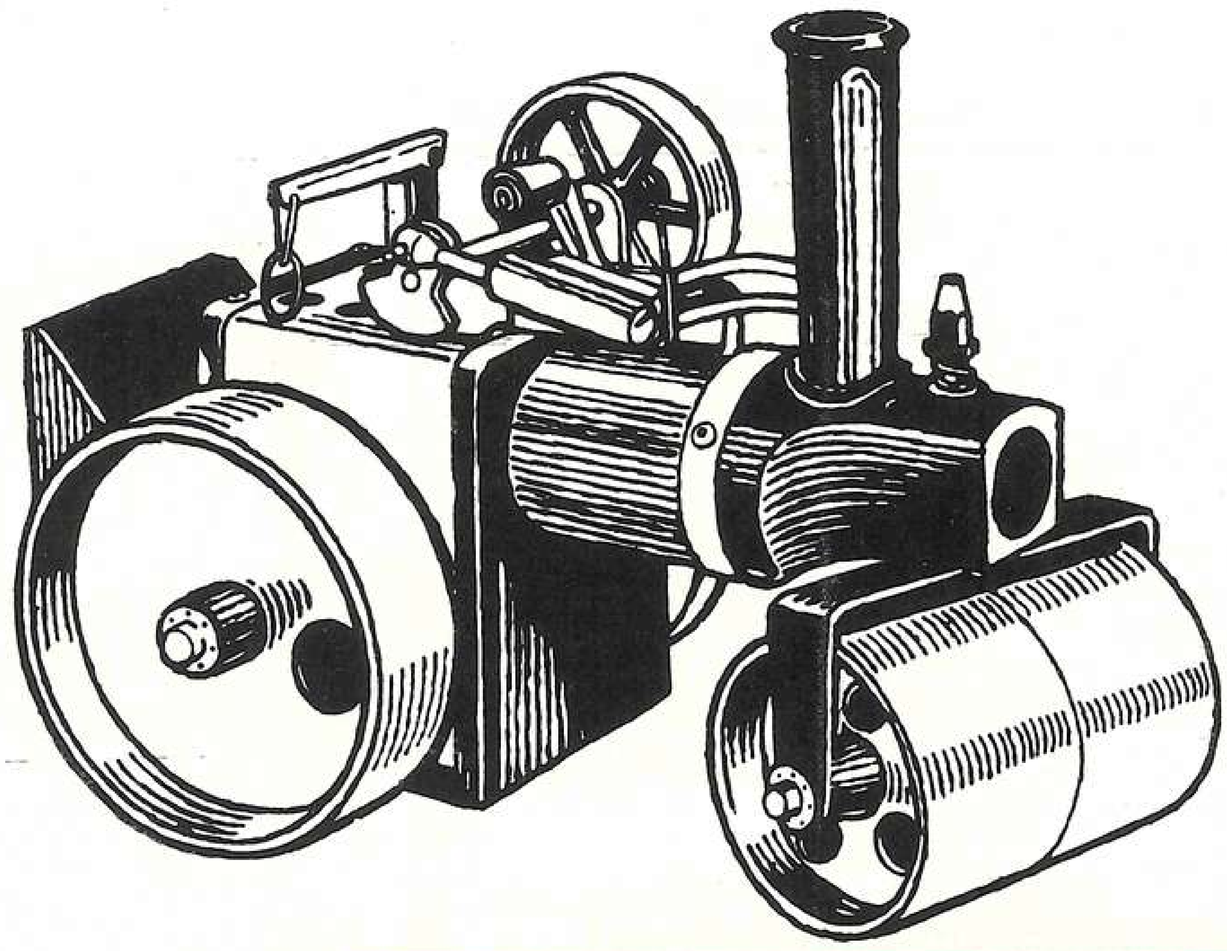

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